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BIBLIOGRAPHY

PRACTICAL, ENUMERATIVE, HISTORICAL

BIBLIOGRAPHY

PRACTICAL, ENUMERATIVE, HISTORICAL

AN INTRODUCTORY MANUAL

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BY

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ILLUSTRATED

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PREFACE

The college teaches its students the elements of the many subjects included in its curriculum and trains their minds for the continuance of intellectual life and growth. But too little is taught of the sources and means of individual reading and study once the student has graduated from instructor and text-book. Only the persevering scholar and the graduate student gradually acquire—and then in the "hard school" of experience—sufficient familiarity with the whole range and extent of the literature on any subject to carry on by themselves the further acquisition of old knowledge, the news-gathering of current discoveries, and the production of new researches.

In giving instruction of this kind, the authors of this manual have been handicapped by the lack of any text-book suitable for upper-class and graduate students which should at once indicate the scope, functions, and methods of bibliographical work of all kinds and topics, and describe or enumerate the fundamental works through which the student may most advantageously approach the selection of books, whether for study or for purchase, the survey of the literature of any given subject, country, or period, the study of books as books, and the production of new works of scholarship.

The attempt to supply this lack has been a difficult and ambitious undertaking, in view of the encyclopædic scope—without a corresponding encyclopædic treatment of the subject, on which a text-book might be based—and of the small portion of time which we as librarians are able to devote to research and authorship. We have not attempted to be complete in any subject—only to cover the fundamentals in such wise that the student may build upon them, and to enumerate a few more-specialized bibliographies which might illustrate the variety of material.

It is hoped that the book will prove valuable to book col-

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lectors and readers in every field. It should also have considerable use in library schools, since it is more comprehensive of the library-school curriculum than any other work now available in English (though of course neither so detailed nor so technical in special topics of library science as books like Mudge, the A. L. A. *Text-books*, etc.). But the use to which it is designed above all is as an introductory text-book for the upperclassman and graduate student.

The first form which these chapters took was that of lectures and notes for lectures given at Princeton University annually since 1923. They have been rewritten several times to embody notes, criticisms, and suggestions by Mr. Walter, based particularly on his experiences with a bibliographical seminar for seniors and graduate students at the University of Minnesota. In chapters 13 and 15, and portions of chapters 7 and 14, the situation is rather reversed and the chapters, in their final form, are chiefly Mr. Walter's.

The actual order of the chapters is that followed in our lectures to groups of graduate students made up from all departments. In other text-book uses, however, the instructor will find it desirable to vary the order of the chapters according to the special interests and previous training of the group of students in the course. For example, the historical order (i. e., beginning with chapter 12) may be preferred in a systematic full-time course; or, again, students looking forward to library work may very well begin with chapter 7.

Our "composition date" is June 1, 1927—the date when our manuscript was submitted to the publishers—and only comparatively slight changes in text or appendix have been possible as other books, both old and new, came to hand. A few titles still have to be bracketed, either because we have not yet seen them or because we have had insufficient advice about them from specialists.

We have attempted to be up to date in the fundamental works discussed, but in case of minor and topical bibliographies the titles have been selected to illustrate different types of bibliography and, while also useful in themselves, may not, in all cases, be either the latest or best in their fields. They would not long remain so, even if we could claim temporary infallibility for our selection. But they are and will continue to be typical; and one of the most valuable exercises for teacher and student should be to supplement the appendix list, from both scholarly and practical points of view, by substitution and addition of titles which are either better, more recent, etc., or, practically, more readily available in their respective libraries. The book is, therefore, comprehensive rather than detailed, illustrative rather than complete.

The compression of our material into a single volume has not only reduced our appendix list to a selection (chiefly of works mentioned in the text) but has reduced its form from bibliography to check-list—and perhaps it is better so, since we wish the student not only to read such comments as we make, in the text, on these works, but also to see the books himself and to describe and annotate them with reference to problems in his special field of study. We have endeavored to make our citations clear, using only abbreviations which are generally familiar or self-explanatory, with exception in the case of one or two journals (e. g., L. J., *Library Journal* and Z. B., *Zentralblatt für Bibliothekswesen*).

We were also obliged to do without fully adequate reproductions to accompany our chapters on the history of writing, printing, etc., but the publishers have allowed us a generous number and variety of one-line or two-line facsimiles. These should serve to make the text intelligible and, we hope, encourage the student to look further in the illustrated works and collections of facsimiles to which we call attention in text or appendix. The student should be particularly warned that, owing to various exigencies, our reproductions could not be of uniform scale, and give no idea, for example, of the magnificence of the monumental inscriptions (Fig. 39) and "square capital" MSS. (Fig. 46). Chapter 14 lacks, for want of space, any adequate treatment of the important and fascinating topic of old-bookselling.

Among the several great libraries in which we worked as intensively as our opportunities permitted, we are indebted in an unusual degree to the John Crerar and Newberry libraries in Chicago, the Library of Congress, and the New York Public Library. The list of our personal acknowledgments would outbulk that of our bibliographical appendix, since we have not only drawn freely on such unexcelled works as Mudge, Schneider, Langlois, Morize, Updike, etc., but have made the freest possible use of "walking bibliographies" among our library and academic colleagues. Among these latter we perhaps made most demands on Messrs. H. W. Craver, of the Engineering Societies Library; H. M. Lydenberg and C. F. McCombs, of the New York Public Library; Frank Place, of the Academy of Medicine; Professor W. W. Rockwell, of Union Theological Seminary; Professors Samuel Kroesch and R. E. Scammon, of the University of Minnesota; and Professors H. R. Shipman, A. C. Johnson, Einar Hille, J. T. and G. H. Gerould, H. C. Longwell, and Mr. E. R. Carlson, of Princeton University. We are also indebted to Mr. Walter Hummelsheim-Christianus for suggestions in chapter 13.

HENRY B. VAN HOESEN.

PRINCETON, N. J.
March 1, 1928.

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PRACTICAL, ENUMERATIVE, HISTORICAL

Education in all levels is directed more and more to training students throughout their entire lives to use the intellectual tools which have been gathered for them: to teaching them that their education is not complete, but just beginning; to teaching the habit of reference to books.

MAX MASON.

CHAPTER I

INTRODUCTION

DEFINITION AND SCOPE

Bibliography is the science of books. That definition alone should place it in its true light as a study of supreme importance to every student. For upon what does our modern civilization depend more as a basis than upon books? We profit by experience and observation, it is true, but the experiences and observations need not be our own—our reaction to an entirely new situation, say, in an automobile accident, may be entirely based on similar experiences which we have only imagined or read about. "Reading extends observation indefinitely" (Koopman [65]). The late Senator Lodge defined books as "the records of all that we know of human deeds and thoughts, of the failures, the successes, the hopes, the aspirations of mankind" (*Two Commencement Addresses*, Cambridge, 1915). The records may be false, the deeds may be failures, and the thoughts may be empty aspirations. Nevertheless "existing knowledge is the basis of future discovery" (Gore [52]).

There is some justification, therefore, for Gabriel Peignot's claim that bibliography is the most universal of all the sciences and includes the consideration of all subjects. But this statement needs some qualification; the bibliographer does not, like the philosopher, take all knowledge to be his province. Hulme's [20] definition of bibliography as "the science of the organization of recorded knowledge" is open to a similar misinterpretation; books, which are the records of knowledge, and knowledge itself are by no means the same thing. Bibliography, as the science of books, therefore, may be said to be the organization of the records of knowledge, but not the philosophic, encyclopædic, scientific organization of knowledge itself. It is rather a subordinate, an auxiliary to each individual branch of study, a guide which "unrolls the whole map of the country we purpose travelling over—the post-roads and the by-paths" (Murray[26]); but it is an auxiliary of supreme importance. "The most valuable knowledge is knowledge that leads to all knowledge. You can't learn everything, so be wise and learn how to learn what you need to learn. All knowledge is in print, or will be to-morrow. To know how to find in books and journals just the information you need—that is to hold the eel of wisdom by the tail" (Dana[1453]).

Iwinski's elaborate statistical study of book production[22] estimates that there are over twenty-five million different books in existence. "It is hardly possible to name a subject on which enough literature does not exist to make a respectable bibliography" (Meyer[25]). Whether or not Iwinski's calculations are correct, the number of books in the world is appalling to every student, and the organization of books is a matter of first importance.

Hulme's *Statistical Bibliography in Relation to the Growth of Modern Civilization*[20] (though limited, in the main, to scientific sources, e. g., the *International Catalogue of Scientific Literature*[786]), presents the plausible thesis that book classification carried to the furthest limits of extension and definition of its classes, plus a chronological arrangement of books in their classes, will present "for each period a bibliographical counterpart of the corresponding activities of the human mind." For "Every phase of human thought and activity is now promptly and, as a rule, efficiently registered by the press. Bibliography . . . collects, preserves, describes, and classifies the material thus recorded." And "If the progress [i. e., of the human race] hitherto realized has been slow and uncertain, it is due to the defects in the apparatus employed—in the remedying of which, I submit, bibliography can play a humble but useful part." One of the reasons given for the so-called static periods in the cycles of history is that after an age of rapid progress, a lull must come—for the organization, the consolidation, the assimilation of the gains. In an age, therefore, when it seems that "growth of print has made futile the attempt to gather it all" (Dana, *Changes in Reading*, in *North American Review*, December, 1922), is not bibliography the best, the indispensable method of consolidating our gains, and can we not effect the consolidation as we progress, instead of leaving it for another "dark age" to do? (Cf. the projects of the League of Nations committee on intellectual co-operation, the increase in university curricula of "literature survey" courses, and other similar "signs of the times".)

DIVISIONS OF THE SUBJECT

Bibliography, as Hulme understands it, is, however, only one kind of bibliography—that which is distinguished from other divisions of the subject by the rather awkward term "enumerative bibliography." In post-classical Greek times, when the word originated, it meant the writing or copying, i. e., the production of books; as late as the eighteenth century it was understood as the study of these ancient manuscript books. And both technique and history of book production are still part of the science of books. To the specialist in some field of science, it connotes all sorts of lists of books, and for the librarian it includes the collecting, care, and administration of books in libraries.

Terminology varies, but we may divide our material roughly into four groups, designated as follows:

(1) Historical, dealing with the history of book production—history of writing, printing, binding, illustrating, publishing, etc., or, if you like, how did our 25,000,000 books "get that way"?

(2) Bibliothecal, concerned with the collection, preservation, and organization of books in libraries (library science and history of libraries). Where are these 25,000,000 books and how can we get at them?

(3) Enumerative, including lists of books of all sorts, which "act the part of gentleman ushers toward other books by introducing them to the notice of strangers" (John Hill Burton, *The Book-Hunter*)—that is, what are the 25,000,000 books all about, and which of them do we need to consult?

(4) Practical, dealing with the methods of work of student and author—reading, research, compilation of notes and bibliography, the preparation of manuscript for the press, publication, etc.

RELATIONS TO OTHER SUBJECTS

Not only enumerative bibliography, but all the four groups of topics have a more or less close auxiliary relation to other subjects. No productive scholar can afford to neglect the aids to efficiency and economy of time in research and publication which are available on such subjects as library economy, authorship and composition, etc. And there are, in every field, classics, historical monuments, which can be thoroughly understood only with the aid of the group of studies on the history of book production which we include under historical bibliography—history of writing, printing, binding, etc.

Bibliography should be a common ground of sciences and belles-lettres. "The humanities look backward; the sciences look forward . . . the humanities may degenerate into mere traditionalism . . . the sciences may degenerate into mere experimentalism" (Spaeth [30]). Students of the humanities should give constant attention to what is new in their fields; scientists should not lose sight of the foundations of their studies in the past. Historical bibliography and enumerative bibliography, current and retrospective, are essential parts of the "bridge between science and humanism" which "every true university should build."

Finally, there are problems which bibliography has in common with other sciences, e. g.: the psychological processes involved in reading and the criteria as to legibility of printing types; the psychological, palæontological, and astronomical problems involved in the origin of writing, the influence of art and machinery on methods, quality, and quantity of book production; and the mathematical, statistical problem connected with so primary a question as the number of books in existence.

INTRODUCTORY BIBLIOGRAPHY

Any manual of bibliography must cover such a mass and variety of material that detailed topics can be dealt with only by brief discussion of general principles and typical examples. Bibliographies increase rapidly and their relative importance is constantly changing. The individual titles included in our text or in the bibliographical appendix may become superseded at any moment, but should have a permanent value as standards of comparison for bibliographical works.

Among general introductory works indicating the scope of bibliographical studies, Feipel's *Elements of Bibliography*[12] is perhaps the best brief outline; it is a 37-page pamphlet containing paragraphs on the scope of bibliography, on the elements and factors of book description, on the various uses and aims of different kinds of bibliography (with examples), on the style and arrangement of bibliographical compilation, etc.

Other works are more concerned with one or another special kind of bibliography. Mudge's *Bibliography*[1] is a brief outline of the kinds of enumerative bibliography, standards of bibliographic work, uses of bibliography in library work, bibliographical work done by libraries and by bibliographical and learned societies, and co-operative bibliographical undertakings. An illuminating and stimulating discussion of this same field may be found in Meyer's *Bibliography in Relation to Business and the Affairs of Life*[25].

On the other hand, Cole[9] is an exponent of the historical, or, as it is sometimes called, the "natural-history" method in bibliography. Likewise Greg's *What Is Bibliography?*[17] is concerned with the technical description of books (to which, by the way, Greg gives the name "systematic bibliography").

These are all brief and readable. Of the more comprehensive works, the best popular treatment is *A Book for All Readers*[31], by Ainsworth Rand Spofford, one-time Librarian of Congress. It is "designed as an aid to the collection, use, and preservation of books and formation of public and private libraries." In its inclusion of a number of chapters on library methods it is more comprehensive than any of the other general works thus far mentioned, but it has little to say of historical bibliography (history of writing, printing, illustration, etc.) or of practical authorship and composition.

The most commonly used American text-books are Hutchins, Johnson, and Williams, *Guide to the Use of Libraries, a Manual for College and University Students*[21]; and Fay and Eaton's

Instruction in the Use of Libraries, a Text Book for Normal Schools and Colleges [1453]. These are primarily guides to the use of libraries, including descriptions of many reference books, bibliographies, etc.; Fay and Eaton also include short chapters on the history of books and of libraries. Both books will serve the user of this book as supplements, containing, within their scope, more elementary and detailed explanations and examples.

Two other useful elementary works are: Arnett's *Elements of Library Methods* [2], Lowe's very well-written *Books and Libraries* [1453] (both for the younger college student), and Buck's still more elementary *Keys to the Halls of Books*, "golden keys that open the spirit doors to the infinite" [7] (in brief note-book style).

Brown's *Guide to Librarianship* [6] and Williams's *Courses of Study in Library Science* [33] are more advanced works of similar subject-matter, but are limited to series of reading-lists, methods of study, etc., and are "designed for the use of students entering for the professional examination of the [British] Library Association." The first two chapters of Baker's *Uses of Libraries* [1620] are a suggestive rather than comprehensive introduction to the subject; the later chapters deal with the contents of libraries (cf. chap. 15).

We have included, further, a few books in languages other than English, as examples of more thorough and advanced works on the subject. Schneider's *Handbuch* [1417] is concerned only with enumerative bibliography, but the first part, the *Theoretisch-geschichtlicher Teil*, gives probably the best exposition that we have on this limited division of the subject.

The others are more comprehensive. Mazzoni, *Avviamento allo studio critico delle lettere italiane* [24], while professedly designed for the student of Italian literature, is of general bibliographic interest in its chapters on "The manuscript," "The printed book," "Libraries" (i. e., libraries in Italy), "Reference books and periodicals," "Local and regional [i. e., in Italy] literary histories and bibliographies," "Subsidiary bibliographical references" (i. e., bibliographies of classical and various modern literatures and of the history of art).

Graesel, *Handbuch der Bibliothekslehre*[16] (also published in French) is a classic in the field of librarianship which has not yet been replaced, although its value for us is lessened by the fact that it represents European library methods and by the fact that it is considerably out of date in both bibliography and library science (cf. his later *Führer für Bibliotheksbenutzer*[15]).

Gardthausen's *Handbuch der wissenschaftlichen Bibliothekskunde*[13] is more nearly of the scope which we have announced for this book. Much of the information given on the ancient and mediæval periods would be difficult to find elsewhere, but it has been criticised by reviewers as amateurish in matters of contemporary bibliography and library science. It falls short of its aim as a text-book chiefly, however, because the method of presentation is more suitable to the scientific monograph or the encyclopædia—a criticism to which every text-book in bibliography will be liable until we have an encyclopædic work on the subject. Cim's *Le livre*[8] should also be mentioned, particularly as a valuable and extensive work of historical bibliography.

The *Haandbog i Bibliotekskundskab*[10], a collaborate work under the editorship of Svend Dahl, now appearing in its third edition, is an admirable small encyclopædic work in four divisions (1, "Boghistorie"; 2, "Bogfremstillingens Teknik"; 3, "Bibliotekshistorie"; 4, "Biblioteksteknik." The second edition also contained a brief treatise and list of enumerative bibliographies). Reviewers have pointed out the great usefulness which this work would have if translated, re-edited, and adapted to the history and technique of the book sciences in other than Scandinavian countries.

Otlet and Wouter's *Manuel de la bibliothèque publique*[27] is intended as a syllabus, like Brown and Williams. Although the authors' point of view is that of the public library—and the European public library—it is unexcelled as a systematic and comprehensive outline of the study of bibliography as we understand it here.

We have listed a few of the more recent and useful collections of essays, etc., and, finally, one visionary but interesting work on the philosophy of the subject. Rubakin's *Introduction à la* *psychologie bibliologique*[28] embodies the results of his studies, since 1889, of the reading and reading capabilities of over 15,000 people—chiefly Russian children, peasants, and soldiers (their letters and replies to a questionnaire, together with the author's own reading of the books and his study of the personalities). Such concrete suggestions as his reader's questionnaire are well worth the attention of book agencies interested in the analysis of reading habits and in the propagation of good literature.

CHAPTER II

PRACTICAL BIBLIOGRAPHY

The order of the student's use of the four large divisions of bibliographical study indicated in the introductory chapter will be practical rather than historical or strictly logical. He begins with reading, study, and plans for research and authorship. In his use of the sources of information, orientation in the bibliography of the special subject may even precede the orientation in his library and should certainly precede the use of the more general types of enumerative bibliography which are, for him, supplements of subject bibliographies, and essential only for completeness and up-to-dateness. The history of book production is of later concern, as specific textual problems arise, or as it bears upon the general cultural side of the subject. Our order of treatment is planned accordingly.

This chapter will touch upon the following topics: Reading, Research, and Methodology (including selection, definition, and limitation of research topic; collection, arrangement, and selection of material, note-taking, compilation of bibliography, criticism of sources, etc.); Preparation of manuscript for publication (including such details as spelling, capitalization, abbreviation, and other questions of "style" in the sense in which the word is used by the printer); Parts of the book and the kind of attention they require from the author (title-page, half-title, dedication, errata, table of contents, preface, chapter and paragraph headings, illustrations, tables, foot-notes, bibliographical references, and index); Publication (the selection of publisher, contract, review copies, etc.); Printing (questions of format, printing type and processes, paper, etc., and proofreading); and Binding. There will, of course, be no thorough technical discussion of all these, but rather suggestions which should assist both student and author to appreciate their respective tasks and pleasures.

READING

In general the student's activities are reading, study, and research. Reading may, at first glance, seem outside the scope of study and research, and the tying up of reading with research may seem like an attempt to take the joy out of detective stories. Nevertheless, there are a few considerations worth your attention. ("To most persons the opportunity of reading for general culture ends with the period of youth" (Koopman [65]) —although a Swiss librarian, Hermann Escher [1002] thinks that only the European's reading is limited to his youth and adolescence, but that the whole American people is still in the adolescent stage and so, we may hope, will read on forever!

Koch's delightful pamphlet, *Reading: a Vice or a Virtue* [64] adapts from various sources much of the best advice and warning—on the dangers of reading to kill time, of excessive reading, of indulging the baser tastes, of merely following the fashion or the publishers' advertisements. Probably the greatest temptations likely to beset the students for whom this book is intended are the excesses of the virtues bibliophilism and scholarship. Bibliophilism begins in the love of books for both content and material form and ends in bibliomania, which cares little for the content and everything for the form, association, or accidental rarity of the book. The present-day scholar inclines to specialize, must specialize, must "read selectively," and runs the risk of losing the appreciation of literature as a fine art—of becoming a narrow pedant.

Pearl [1072] finds that the college graduate entering on graduate and research work will fail of attaining a "comprehensive, justly balanced, and critically related knowledge of the particular field" unless he has a "solidly grounded general cultural background upon which to build a sound specialism." His list of books, selected particularly for specialists in public health, would fit the case of any of us, as it includes classics of all ages, in philosophy, science, history, and literature—Aristotle, Lucretius, Francis Bacon, Rabelais, Anatole France, etc., etc.

In this chapter, however, we are not concerned with what you read, but firstly with the fact that you must read, and secondly with the method—how you read. Even on the most rigid and critical principles of specialization in subject and book selection within a subject, most of us have more than a lifetime's reading to face. We are sometimes advised to "skim," "skip," "read selectively," "browse"—and it is good advice, with some qualifications. You should at least "do the author justice" (Koopman); you should read carefully enough so that you can, afterward, make a mental review of the book; inattentive reading "breeds the habit of mind wandering," and so results in eventual loss of time.

On the other hand, the advice to read *rapidly* is perfectly safe. Psychological experiment has shown that rapidity and concentration of attention go together, that the more rapid worker is often also the more thorough. Carlyle says "mean business when you read." Psychology is also teaching us how to read rapidly.

"Reading is a new art . . . children pronounce the words they see . . . poor readers mumble . . . all readers . . . pronounce in their minds. . . . This silent pronunciation takes time" (Dana [45]). Modern pedagogy emphasizes the sentence or paragraph method of reading. What is the largest unit of reading we can manage? We do not "read as we run" but while we stop. The eye moves from one pause to another, and it is during the pauses, not the movements, that the reading is done. Consequently our rapidity of reading depends on the range of print our vision includes (letter, word, sentence, paragraph, or even page) and on the rapidity of our mental comprehension of the print seen. Huey's *Psychology and Pedagogy of Reading* [58] gives interesting diagrams of this "reading range" of a single glance of about 1/100th of a second's duration, including both what is actually seen and what is mentally supplied. Read also chapters 2 ("The work of the eye in reading"), 3 ("The extent of reading matter perceived during a reading pause"), and 9 ("The rate of reading"). O'Brien's *Silent Reading* [74] embodies the results of experimentation with the different factors influencing the rate of speed—practice, decrease in vocalization, training in perception, concentration of attention, etc.—with the conclusion that the results of training are very considerable, chiefly in lessening the number of "eye-fixations." We ourselves have found that these principles apply even to reading in foreign languages and unfamiliar types (e. g., the German *Fraktur* type), when we have had time for a fair amount of steady consecutive practice. Rapid reading should tire you no more than slow reading of the same amount of print, though it will tire you more in the same amount of time (cf. Huey, chap. 20). We have found relief from "reading fatigue" by reading aloud. This will assist concentration—but will not decrease your speed when you return to silent reading.

There are legions of books about books. Whenever a columnist needs a pot-boiler, he may fall back on the "never-ending comfort," "solace," and "inspiration" of books. How comparatively little novelty most of them contain, you may observe by reading Richard de Bury's *Philobiblon* [992] or, say, a typical scholastic work of the seventeenth century, Gulielmus Saldenus, *De libris varioque eorum usu et abusu* (Amst., 1688), which is characteristically documented with quotations from classical authorities from the fifth century B. C. down to the author's own time.

Koopman's *Mastery of Books* [65] is of the useful type; its aim is "to take counsel with the student in regard to his reading; to consider with him his capacities and opportunities; to aid him in turning to such classes of books as will further the attainment of his aim; and also, by the suggestion of various methods, to lead him to the study of his own qualities of mind and character, to the end that he may choose the material and manner of reading most profitable to himself." Among familiar classic titles (which are not mere "pot-boilers") are Carlyle's *On Books and Reading*, Frederic Harrison's *Friendship of Books*, Montaigne's *On Books*, etc., and such anthologies as Ireland's *Book Lover's Enchiridion* [59].

RESEARCH

"The discovery of truth is a matter of scientific method; and its instruments are intellectual honesty, perseverance, industry, and imagination" (Spaeth [30]). There are a number of recent useful works on the subject, for students of all ages, e. g., Schluter's *How to Do Research Work* [81] and Reeder's still more elementary *How to Write a Thesis* [77].

Each subject has its own methodology—philosophy indeed includes a large division of general methodology, and methodology and logic are of general application in all scientific thought, e. g., cf. Pearson's *Grammar of Science* [75].

In history, Ernst Bernheim's *Lehrbuch der historischen Methode* (5th–6th ed., Leipsic, 1908) is the classic work, though perhaps more often referred to than read by American students. It is a book of nearly 800 pages, with chapters on Scope, Methodology, Sources ("Quellenkunde"), Criticism, Composition (i. e., Interpretation, Combination, etc.), and Exposition. The much-used Langlois and Seignobos [66] recognizes that "The great majority of works on the method of pursuing historical investigations and of writing history . . . are superficial, unreadable, sometimes ridiculous," but still asserts that "of all branches of study, history is without doubt the one in which it is most necessary for students to have a clear consciousness of the methods they use." The most practical brief work we have had opportunity to read is Fling's *Writing of History* [48], which covers the field of what we have called Practical Bibliography from choice of subject to exposition, stopping short, however, of the mechanical details in the preparation of manuscript, printing, publication, etc. Johnson's *Historian and Historical Evidence* [62] is a good example of the special treatment of one division of the historian's methodology. (Cf. also the *Bulletin* of the Institute of Historical Research [166].)

Students of both historical and literary source material will have use for such introductions to the methods of palæography and text criticism as Hall's *Companion to Classical Texts* [1609] and Fournier's *Conseils pratiques pour le classement et l'inventaire des archives et l'édition des documents historiques écrits* [49]. In language and literature, Morize's *Problems and Methods of Literary Criticism* [72] (primarily for students of French) is one of the books on which we have drawn most extensively for details in this chapter (note especially chap. 12, "Preparation and redaction of a thesis"). (Cf. a similar manual designed for students of English and of humanistic and social sciences in general, in preparation by Nason [73].)

The student should realize, however, that methodology is better learned by example than by precept, and should note the methods as well as the results of the great scholars in his field. The theoretical section of Westaway's *Scientific Method* [87], for example, may prove less valuable than his extracts from Harvey, Boyle, Newton, Faraday, and others, descriptive of their own methods; and the litterateur will enjoy, if he cannot imitate, the methods of a hundred famous authors as extracted from their writings in Lane Cooper's *Methods and Aims in the Study of Literature* [42].

Frost's *Good Engineering Literature: What to Read and How to Write* [50] is useful to students in all fields. Crane's *Guide to the Literature of Chemistry* [858] and Hicks's *Materials and Methods of Legal Research* [412] are excellent examples in their special fields (cf. other titles in app.).

SUBJECTS OF INVESTIGATION

The object of research is, of course, information, but, particularly, new information, new truth; and we all aspire to productive research. The budding author may like to refer to an *Obstetrix literaria* (by Paganinus Gaudentius, Florence, 1638). But the research student is more interested in the earlier stage. There must first be an idea, theory, or discovery to deliver. A thesis subject can be drawn from the pigeonhole of any professor or older research worker. But your own reading should also be a source of inspiration. "A thoughtful mind becomes original in the very act of reading and study" (Gore [52]). The scholarly mind finds everything to question in all books, whether matters of fact or of opinion.

The procedure in investigation will vary according as your purpose is the assimilation of existing knowledge or the discovery of new knowledge. The essayist, the lecturer, the journalist, or the author of a text-book may often be concerned only with an exposition, synthesis, or analysis of existing knowledge. Circumstances may even limit him to material readily available. Thus many of the books mentioned in connection with our first two chapters, as they are designed for the younger student and for the general reader in the public library, recommend first recourse to the subject catalogue of the library and to general reference books. But the student whom we have particularly in mind, who has already begun to specialize, will generally undertake his survey of the literature of his field in the following order:

(1) Encyclopædic and reference works in the special field.

(2) The best and latest bibliographical manual, or bibliography of bibliographies, in subjects where such a work is available.

(3) Periodical bibliographies and reviews, published subsequently to the above.

(4) National and trade bibliographies which are always in advance of review notices.

(5) Special bibliographies and indexes, especially those of government publications, general periodical indexes, lists of society publications, of dissertations, etc.

(6) Universal bibliographies, oftenest of use for exhaustiveness in compilation and for verification of uncertain references.

(7) Information as to unpublished works. There are "walking bibliographies" as well as "walking encyclopædias" (more or less reliable !)—bibliographies partly in the heads and partly in the unpublished card catalogues of their compilers.

The research scholar who hopes to have hit upon a new idea must first test it for its novelty by the use of all these bibliographic sources.

LIMITATION OF SUBJECT

If your idea or discovery is not a new one, there's an end of it. If it is new, you must next test it as to the possibility of complete discovery and proof. You may find that there is no evidence, or that the material you would have to work with is available only in European libraries. Or, on the other hand, you may find that there is so much material that you must select some section or special phase of the problem (cf. Morize).

The first great function of the library catalogue in the progress of a piece of research work lies in its indication of what book resources on a given subject are available on the spot. It is likely that no single library will prove to contain absolutely every book needed in the course of a certain piece of research, and that the student will have to request the purchase of additional titles, or loans from other libraries. But new purchases of unusual or out-of-print books are not always consummated with ease and promptness, and larger libraries are finding that their interlibrary loan service is in danger of being overworked, to the detriment of their service to their own scholars, so that the service is being more and more restricted (cf. chaps. 7 and 15). The more thorough your preliminary survey is, the less likelihood there is of fruitless efforts toward new and complete contributions to knowledge.

COLLECTING MATERIAL, BIBLIOGRAPHY, AND NOTE-TAKING

Your own compilation will contain, of course, all sorts of material—entries for various classes of objects (living objects, patent inventions, scientific instruments and observations, archæological monuments, etc.) and notes of all sorts (quotations, abstracts, original ideas, etc.). But the chief source material, in most instances, is either contained in books or found by means of books.

Billings's [36] criteria of a good bibliography are: (1) accuracy, (2) completeness, (3) absence of repetition, (4) form, (5) critical value. "Establish your bibliography with minute care, with no preconceived idea as to the utility or futility of any reference on your topic" (Morize). Of course, you will eventually have to select. There will be titles which will contain nothing. Nevertheless, as an authority on your topic, you will reasonably be expected to know about these minor titles, and again there is good chance that in your further study along the same line you will find them useful, or even be glad to have their uselessness recorded in your file.

You may look over a book and summarize *in your mind* what it is about and what use it has for you, but after you have done this for a few thousand books you will forget, and your list of references will tell you no more than the library catalogue, where every book is distinguished from every other book as a thing, but not as to all details of content. The first aim of your notes, then, corresponds with the first aim of book reviewing and criticism, to note what is essential in a given book and where it is different in content from all other books. Your selection is based on your critical notes, and is not a selection of best books for the general reader, for spinsters, or for "Crusoes" on a desert island, but for the accomplishment of your own work.

As to the mechanical method of compilation, use cards, preferably standard size, 3 by 5 (sometimes called "P" slip). A note-book is all very well for lecture notes or notes on a single book, but for notes which you will have to rearrange, classify, and compare with notes from other sources, use cards. If you have to have them cut, take care to select paper stock which will not tear or soil with much handling. Standard card files of wood or pasteboard may be bought or manufactured at home, e. g., from cigar-boxes. Some kind of container is necessary; rubber bands are temporary and unreliable.

Garrison [51] is enthusiastic in praise of cards as against the old commonplace book. "It is a game of solitaire which has the advantage of stimulating instead of depressing the mind, and will always bring substantial winnings to those who use it with intelligence and discretion." Experience warns, however, that, like solitaire, fingering catalogue cards is a time-consuming diversion. The convenience of being able to arrange and rearrange, classify and reclassify is an obvious advantage, but, before you have accumulated more than a few thousand cards, your first classification should be a selection of what you are most likely to use.

Morize recommends two entries for each title—a subject and an author card—but this is costly in time if your book titles run into the thousands. (The writing of this book, for example, has involved the accumulation of some 30,000 cards.) One card for each title, if arranged by subject, will answer most purposes, provided the subject-classes can be made distinct and minute enough so that only an occasional title will have to be represented under more than one heading.

You may find it worth while to write a subject heading or classification symbol at the top of the card, to expedite classifying and arranging. Your first classification is not likely to be final. New subdivisions will be added as the bulk of the material grows, and new associations and relations of topics will necessitate rearrangement. Existing schemes of arrangement in books on the subject, and library classification schemes may give you valuable suggestions; but the material may or may not conform to any already existing set classification. "To apply the decimal classification to bibliographies is monstrous and ridiculous" (Pollard [76]).*

The general description of a given book or article rarely requires more space than that of a single card, but notes on a given subject or title may bulk so large that there may be occasion to use sheets instead of cards—and the sheets should be of standard size so that they will file conveniently with your pamphlets and similar material. But the danger is that too much material—say the outline of a whole book—will be put on one sheet, and that later on you will want to distribute it, combining your notes on each chapter or paragraph with similar notes from other sources. In short, the shortest method is to combine on your first card the description of your book and any general notes about its content, method, value, etc.; to use a second, third, and fourth card for detailed notes, quotations, etc.; and then to file all into a carefully classified system between guide-cards. The general rule that the writing should be on only one side of the card or sheet has its exceptions. We ourselves do not scruple to say "over" and use both sides—we have fewer cards to handle.

Every bibliographical pedagogue will emphasize the fact that you should always *see* the book. You will have to do this anyway for purposes of analysis and criticism, but even in matters of physical description, bibliographical sources are likely to be incomplete and unreliable in details and should always be checked up. You are reasonably, though never entirely safe in copying a title from the library catalogue for insertion in your file, since all library cataloguing goes through the hands of a reviser. You may find it worth while to buy printed cards, such as may be obtained from the Library of Congress (cf. its *Handbook of Card Distribution* [1021]). Different symbols or abbreviations are convenient indications that you have described, analyzed, or criticised a book at first hand; and you should not lose track of any sources from which titles or annotations are taken without verification. (One of our own MS. bibliographies must be done over because of references copied from an inaccurate source. Had the source been indicated, we could have eliminated them without vain attempts to verify.)

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* S. C. Bradford (in *Lib. Assoc. Record*, Dec., 1927) considers the Dewey system in the elaborate expansion used by the Brussels Institut International de Bibliographie adequate "for indexing literature on the widest scale."

There are, according to Brown, *Manual of Practical Bibliography* [37], three kinds of applied bibliography (i. e., bibliographical compilations). The first treats of books as curiosities. Any book may become rare and a curiosity, through accident of ownership, association, etc., in spite of its scientific value; or, vice versa, mere curiosities may in the course of time acquire scientific or historic value, like the Thomason tracts of the British Museum [1051], the collections of playbills in Harvard University and in the New York Public Library, etc.

The second method is the "natural-history" method, so called because it practically dissects the book. The philologian and the historian, particularly, have to be able not only to decipher and date manuscripts but to collate their pages and gatherings, compare them, establish family trees, account for apparent errors, re-establish correct readings, and so on. The products of the early press were by no means uniform; different copies of the same edition sometimes vary even as to the arrangement of the type, some copies have errors which do not occur in others, and differences may possibly be as significant as differences in editions. As an example of the "natural-history" method applied even to modern books, cf. Clapp's *Analytical Method in Bibliography Applied to Daniel Webster's Speech at Worcester in 1832* [4]. (Cf., further, McKerrow [1542].)

The third method, however, is the one which you will all use, that is the listing and description of books as regards contents and value—critical, enumerative bibliography.

As to what items of information your bibliography cards should contain, and the form and style of their composition, you will find in the *Catalog Rules*[995] of the American and British library associations a more systematic and well-established code—and a code more adaptable to the needs of students in all fields—than you will find in general works on authorship and composition, or even in manuals designed for students in special fields, such as Dow's excellent *Principles of a Note System for Historical Studies*[47] (cf. our chap. 7). Your bibliography will be like a library catalogue in identifying completely the author, the book, and what the book is written about. You will go farther than the library catalogue in that you will include more "analytical" entries (i. e., periodical articles as well as books, and references to chapters or paragraphs) and in that you will give more elaborate contents—synopses, abstracts, and critical notes. You may even be called upon to abstract your own paper, inasmuch as, during the War, the influence of the Interallied Research Council led a number of scientific journals to publish abstracts along with their articles, and the practice is becoming quite general. In short, you will practice bibliography "in its highest form"—not as a mere process of enumeration but as a work of truly scientific criticism (Schneider[32]). Your critical annotation will indicate: What is the author's aim, what are his sources, and how does he use them? Is his work original, and to what extent? What are the main results of his inquiry, what errors, to what extent did he accomplish his purpose? (Sarton, *Synthetic Bibliography*[80]. Cf. also Fling, Manly and Rickert, and our notes on book selection, chap. 9.)

On the other hand, in some details your entries may occasionally be made briefer than catalogue entries. The author's full name is preferable to initials, and yet there are not all the same compelling reasons for giving full name in a bibliography that there are in making a card catalogue. In a given subject, there are not likely to be so many authors named *Smith* as in a universal bibliography. The titles may be more abbreviated, supposing that the fuller notes adequately indicate scope and content. The bibliographer may vary, according to circumstances, his indications of publisher, series, and even paging and number of illustrations (cf. our *Short Cataloguing*[1029]). In certain subjects, illustrations are of little account, but in other topics they are among the most important features (e. g., in a book on costumes). The name of the publisher is important in case of early printed books, fictitious imprints, official publications, classes of works in which certain publishers specialize, etc., and in case you may want to order for purchase from your bibliography. It is safer, therefore, to begin with full entries, with full imprint, paging, etc., until you are sure of all the uses you will make of your cards and in what form you will publish them. In any event, never omit date of imprint, and, in case of references to periodicals, give both volume number and, in parentheses, date. Many numerical errors are thus self-corrected and the importance of dates, particularly in scientific work, is often so great that, while titles and descriptions of works cited may be relegated to foot-notes or bibliographical appendices, citations in the text include the imprint date along with the author's name. The trouble caused by incomplete and inaccurate references is well described by Pierce Butler[38] (a list of 80 titles cited in a certain book could be identified in the library catalogue only by looking through 3,276 cards).

Each note or quotation should contain the exact indication of its source, with quotation-marks if quoted exactly—one of the pleasant tricks of the unfriendly reviewer is to supply missing quotation-marks. Manly and Rickert[68] give a useful list of occasions when quotation is to be preferred to citation: (1) point very important; (2) point to be refuted; (3) statement referred to is ambiguous, so that you may have misunderstood it; (4) there is a chance that your citation may not be "exactly representative"; (5) point so well stated that quotation would add interest to your paper. Omissions in quoting from titles or texts are indicated by three dots; insertions, by brackets (cf. *Catalog Rules*[995]).

The scholar who writes much and takes many notes will save a great deal of time and energy by the use of abbreviations and shorthand. His system of abbreviations should, however, be a standard one, based on such general lists as that in the *Standard English Dictionary;* or on more special works, either in the field of bibliography itself, like the dictionaries by Walter and Moth [1453], or in other special fields; or, again, on the special lists of abbreviations customarily used by individual journals or publishers. A surprising economy is possible even in the use of numerals; Yerkes and Field (Concilium Bibliographicum, Zurich, *Annotationes* 4 (1908), p. 13–14) find that Roman numerals take 3⅓ times as long to write and involve 20 times as much risk of error as Arabic, and take 3 times as long to read, with 8 times as many errors.

You may have already invented a perfectly good arbitrary abbreviation system of your own, but, even though you may be fortunate enough to escape confusion in translating it yourself, you will not be able to leave it to a typist or printer to translate. If you publish your MS., abbreviations and all, including the explanation of your system, you will be intelligible, of course, but only at such pains to the reader as you yourself have suffered in reading some very economically printed German works. Special caution is necessary in abbreviations of titles of journals, as their names and abbreviations are often very similar. In repeated references to the same work, the use of *op. cit.*, *l. c.*, or *loc. cit.*, etc., are economies, but are baffling if far separated from the first and full citation.

At the end, you should publish your bibliography, either by itself or as a part of your book. There are examples of many types of bibliographies on any given subject, all serving at least their day of usefulness. They may be *exhaustive* and *full*, or "check lists," "finding lists," etc. (exhaustive in enumeration without being full in description and annotation). They may be *partial* in that they are primarily catalogues of special collections or libraries (but incidentally perhaps all the more comprehensive and accurate, like the Catalogue of the Surgeon-General's Library [964]) or because the author prefers to assert the modest claim of "contributions toward" rather than an always questionable claim of a "complete bibliography." Bibliographies, even in a given subject, may be *selected* from any of many points of view: with reference to merit ("Best books"), date (e. g., "Recent references"), use (e. g., "Reference books," "Source books," "Popular books," "Text-books," "Children's books"), etc.

The scope naturally varies according to the type of book. Reference books, encyclopædic works, should contain bibliographies, which, like bibliographical manuals, would lead—not in all cases directly, but eventually—to the sources of information on every point in the subject (cf. the bibliographies at ends of articles in the *Britannica*, the *Americana*, and the other great encyclopædias). They have not space to be exhaustive. Text-books are, of course, even less comprehensive in their bibliographies, but should at least mention the chief reference works, subject, of course, to the limitations of their users in linguistic attainments. Even popular works should at least mention the encyclopædic reference works on the subject (cf. the American Library Association Series, *Reading with a Purpose* [1184], the reading-lists for alumni published by various American colleges, etc.).

Definitive editions and monographs which would constitute the last word—or the first word—on a subject, should either include complete bibliographies or refer to exhaustive bibliographies and bring them up to date. Particularly in a doctoral dissertation, the bibliography not only supplements the investigation, making it completely cover its field, but is even more essential as evidence in proving the case. You must give your evidence to convince scholars that you have made proper use of your sources. A mere list of scattered references may "suggest further reading," or may satisfy the requirements of courtesy toward authors on whom you have drawn more largely, but does not go far as guarantee of your thoroughness and soundness of method. Only poets dare leave it for their commentators to discover the sources of their allusions.

There is an altruistic side too; and here we may well quote from the preface of Lanson's great bibliography of French literature [647]: "Le travail purement bibliographique que je présente ne correspond tout à fait ni à mon éducation littéraire ni à mon goût, qui me portent plutôt vers l'étude historique des faits et l'analyse esthétique des textes. Pourquoi donc l'ai-je fait? Parce que personne ne le faisait, et qu'il fallait enfin que cela fût fait. Parce que je suis professeur, et tenu de fournir à mes élèves la meilleure préparation que je conçois." Again, Billings [36], one-time librarian of the Surgeon-General's Office and a famous medical bibliographer, speaks of "a bibliographer who has never performed and probably will never perform the operation of which he gives the history, and yet he has contributed as much to its future success as those who have devised or practised it."

COMPOSITION

The classification divisions of your notes and bibliography will have already provided an outline. "Pick out every problem and give every point the form of a problem . . . to distinguish old and new, and subordinate in your arrangement the old to the new. . . . You will bring out every discovery that you have made pertinent to the question and discard what is not pertinent. You will decide upon logical or chronological order. . . . Deal with the question as a whole," i. e., do not split up any more than necessary among different chapters—and avoid the looseness of "unacceptable repetitions" (Morize).

A good deal has been said as to how, where, and when you actually write. Our own experience is that there is no better time than when we have to. Stephen Leacock's advice, on the other hand, is: "If you want to write, just go ahead and write. Write on what you want, when you want to, and all you want to . . . whatever you do, don't be discouraged. Quiet resolution is worth more than the mere splutter of talent" (quoted in *Bookman*, March, 1927, p. 37). Cim's *Le travail intellectuel* [40] is at once a sensible and an amusing book on the author's working conditions, including chapters on the essentials of order, clearness, penmanship, physical condition and environment, etc., and a variety of anecdotes of the methods and manias of famous authors of all sorts—whether they wrote better drunk or sober, before or after breakfast, etc.

Your classified file of notes and references should help you in clearness of exposition. "There is no reason why a scholarly piece of research work should be dull, hazy, and unreadable. . . . Produce all your proofs, all your facts, all your dates, on condition that they signify something" (Morize). Select your notes for their significance for your thesis, not for their literary flavor, humor, etc. Many an otherwise conscientious student has sacrificed or shaded truth for the sake of an epigram. How, then, can you avoid being dull? By the logic and clearness of your argument and by your own interest in your subject. Your success in writing, as in pedagogy, depends on "contagion of interest."

In a bibliographical work the attainment of both clearness and interest is not always easy. A narrative style (like the German *Jahresberichte*, or the English *Year's Work*) makes extremely interesting reading for the scholar who wishes to follow the developments in his field of study, but, for reference purposes, is not to be compared with the simple enumerative, itemized style (cf. Feipel [12]). The narrative style tends to sacrifice details of mechanical description to interest (e. g., failing to mention that a work under discussion is an article in a certain periodical), while the itemized style tends to summariness and perfunctoriness in critical annotation. A mixture of the two styles shares the merits and defects of both (e. g., Schneider's *Handbuch* [1417], and, very likely, this book which is now before you). Like the style, the order of treatment will depend upon the extent and purpose of your bibliography. An alphabetical arrangement is best only to show whether a given work is included (as in a library catalogue) or what a given author has written; the historical development of a subject is best shown by a chronological arrangement; and the best guide to the subject-matter is a classified arrangement.

The subject of authorship and composition has been a field for literary exploitation second only to the subject of books and reading, and figures in "success" and "get-rich-quick" literature.* Holliday and Van Rensselaer claim for their *Business of Writing* [57], "the total absence from this book of any Aladdin's-lamp-like efficacy makes it peculiar in its field," but we should place beside it a number of other useful works, like *The Building of a Book*, edited by Frederick Hitchcock [56], Jacobi's *Some Notes on Books and Printing* [61], Joseph and Overton's *Commercial Side of Literature* [63]; and, above it and them, for the non-commercial part of the business of writing, any of the numerous text-books of English composition, such books as Manly and Rickert's *Writer's Index* [68] for the mechanics of composition; Morize [72], Fling [48], Frost [50], Trelease and Yule [82], etc., for the special technique in special fields of study. One might suggest, further, a long list of writer's manuals for different types of composition—drama, short story, translation, correspondence, reports, even conversation. Also nearly every important publisher has his own useful manual dealing with the preparation of an author's manuscript, rules of style, punctuation, spelling, etc. (cf. app.). Finally, there are at least three American periodicals (*The Writer* [89], the *Authors' League Bulletin* [35], and the *Publishers' Weekly* [1198]) which are worth keeping in touch with for their frequent and timely discussions of authors' problems (composition, preparation of manuscript, publishing contract, copyright, etc.).

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* " . . . You can't find no school in operation up to date . . . which can make a great author out of a born druggist" (Ring Lardner, *How to Write Short Stories*, N. Y., 1924.)

After all is said and read, however, authorship and literary style, like research methodology, are better learned by example than by precept; and a single study or conference with your literary and scientific advisers is worth more than many manuals of cut-and-dried rules and directions.

PREPARATION OF MANUSCRIPT. PRINTER'S STYLE

On the mechanical side of the composition, there are too many details to enumerate fully here, and there are many in which you will prefer to work out your own practice with reference to your own subject and your own publisher. You are generally told that your manuscript should be on standard-size sheets; but for the first draft we prefer half-sheets—corrections and transpositions involve less retyping or cutting and pasting. Your paper should be of uniform size, so that you can shuffle it together and clip it, without danger of losing a sheet. The paper should be strong because you will probably have to handle it considerably.

If you are working with a number of different manuscripts, original compositions, or notes, at the same time, it is well worth while to add a symbol to each page number to indicate to which manuscript it belongs. In case insertions are necessary, mark them (e. g., 31*a*, 31*b*), but don't forget to indicate on p. 31 where these *a*'s, *b*'s, and *c*'s are to be inserted. If you transpose by cutting sections of pages, paste these on a sheet of uniform size with the rest of your manuscript so as to keep your format the same—and paste, don't clip or pin, as these are uncertain methods of holding the material together and are likely to mutilate the manuscript.

Your typewriting or handwriting should be double-spaced, so as to make for easy reading and editing, and to allow for insertion of corrections. You should have wide margins for corrections and for directions to the printer. Anything that you can do to insure correct typesetting is a gain, such as going over your handwritten *m*'s, *n*'s, and *u*'s; *r*'s and *v*'s; *a*'s and *o*'s; capital *I*'s and *J*'s. Cross your *t*'s and not the adjacent letters, dot your *i* over the *i*, print the foreign names, and so on. The publisher usually allows something like ten per cent of the whole cost of composition for correction, and corrections beyond this amount are charged to the author.

The general rule to typewrite with a carbon copy should not apply to a first draft, which is certain to be reworked and to call for recopying—it is an aggravation to keep two copies corrected to date. But a duplicate copy of the final draft is a great comfort and safeguard against worry over the possibility of the loss of a work of years. Use your own typewriter. A second-hand or rebuilt typewriter is comparatively inexpensive, or a standard machine may be rented for a dollar a week or less; and after an hour a day of practice, on the touch system, for say a month, most amateurs find that they can write more rapidly than with a pen.

There are a number of matters of "style" in which your manuscript should follow established conventions, or, at least, be consistent with itself. We have, in general, followed the

Manual of Style of the University of Chicago Press [39], but cf. also those of other publishers, e. g., the U. S. Government Printing Office [84], the H. W. Wilson Company [88] (who specialize in bibliographies and indexes), etc.

(1) Capitalization. Two lines underneath indicates small capitals; three, big capitals. A combination of underlinings, short and long, indicates combination of capitals and small capitals.

(2) Style of type. A waved line indicates that the matter is to be printed in "bold" or "black face"; a single straight line indicates italics. Italics are used for emphasis; to set off from the text ("display") a foreign word, a book title, a quotation, etc.; for certain abbreviations according to customary usage, such as *ibid.*, *op. cit.* (cf. list in Manly & Rickert); for letters used as symbols, for letters referred to as letters; for certain scientific Latin names of species, plants, and so on. But note in general that italics are good for display only by virtue of their contrast in appearance to the face of type which surrounds them; in themselves and by themselves they are altogether too light for display (e. g., in titles, headings, etc.).

(3) Spelling. The U. S. Government Printing Office manual warns against violating the established usage as to geological and technical names (e. g., petrographic terms) in spelling as well as in capitalization, use of hyphens, etc.

Most publishers have what they call the custom of the house, and, both in spelling and abbreviations, it is well to have it understood whether your manuscript is in accordance with that custom. (The galley proof of one of our own publications came to us in a style half ours and half the printer's, and we escaped "author's" corrections only by insisting on the printer's following *his* practice consistently.)

(4) Punctuation. Make your punctuation clear—e. g., hyphens short and dashes long. If the hyphen of a compound word stands at the end of a line it should be doubled (like an abbreviated equality sign). Distinguish your colons from your semicolons. Make your paragraph indention very clear or mark it with symbols. There are many different sets of rules for punctuation, and not uninteresting discussions in the various manuals of style.

(5) The chapter on "spacing and syllabification" in Ives's *Text, Type and Style* [60] is valuable for reference purposes, as there are few of us who do not have trouble, for example, in deciding at which letter to divide a word by a hyphen at the end of a line.

Certain portions of your work may require their own peculiar rules of style—notably your bibliography. Many standard abbreviations are customarily employed in printed as well as manuscript bibliographies. Observe the library catalogue cards and catalogue rules, and the *Style Book* of the H. W. Wilson Company [88], especially where they differ from ordinary publishers' usage. For instance, we say *v.*, not *vol.*, for *volume; p.*, not *pp.* for *pages*. The capitalization of every noun in the titles of books, as prescribed by most style manuals, makes the page of a bibliography appear absurdly and confusedly "peppered" with capitals; the library rule of beginning all common nouns with small letters is preferable, though it is a barbarism to use small initials in German nouns, contrary to the usage of that language. In punctuation, likewise, the best bibliographical usage includes the library devices of three dots to indicate omission, square brackets for insertions, the semicolon separating main title from explanatory title, the colon between independent titles as set forth on the title-page (for example, cf. app., no. 1540), the period followed by dash in the detailed enumeration of contents (e. g., app., no. 1), etc. Again, in the selection of type face, the bibliography presents its own problems—size, face, spacing, etc. (Cf. Rollins [79].)

THE PARTS OF THE BOOK

Your book will begin with a title-page. First, your title should tell what your book is about—only poets and novelists attract readers by mysterious titles. Secondly, it should be brief. (Trelease and Yule [82] even attempt to set a definite limit of not over seven words!) A long title may gain you more free advertising space in the trade journals where it is listed (provided they quote your title in full!), but a short title is easier to remember and cite. If a long title is necessary, use a significant catchword as title and follow it by an explanatory subtitle (Frost). When you come to print, see that the significant words of the title are given their proportionate prominence in type.

After the title comes the name of the author. The scientific world is not like the field of political satire; you may let people know who you are—your full name, your academic titles and position. This is not false pride, but considerateness. It saves the reader's consulting *Who's Who*, *Minerva*[1173], or college catalogues, to find out, on otherwise than the internal evidence of the book, what your qualifications are.

Below comes the imprint (place, publisher, and date). (The early printers used the colophon at the end of the book instead of a title-page, and the colophon is still used to indicate the printing firm in cases where it is not part of the publishing firm given on the title-page.) Make sure that your publisher puts on an imprint. Doctoral dissertations sometimes fail to sell because people do not know where they can be bought. We see no reason for secretiveness about the date of publication unless it be to hoodwink the public into thinking that a superannuated book is still up-to-date. Yet only a few years ago one of our American university presses was unable to tell us in what year they had published a certain book in which they had neglected the imprint date; and some publishers still have a system of symbols which indicates to them, but not to the public, in what year a given book was printed. But we need the imprint date for the correct description of a book; we prefer to buy up-to-date scientific works; and we cannot judge a man's work fairly—whether he has collected all his evidence—unless we know when he wrote and what evidence was then available. We cannot get at the point of view of a certain period unless we know that the book was written in that period.

Preceding the title-page there is sometimes a "half-title." This is useful to indicate the series in which a book is published. On the other hand, unless the series title is a long one, there is no reason why it should not appear at the head of the title-page. Occasionally, when the last page of front matter and the first page of text proper face each other, a repeated half-title intervenes.

On the back of the title-page is the copyright declaration, and indication by date of any earlier editions of the book. The declaration *Copyright* (Date) (Name) secures copyright in the United States for twenty-eight years (U. S. Copyright Office, *Bulletin* no. 15 [83]) provided that two copies of the best edition are deposited in the Copyright Office; and provided that the deposit copies are accompanied by registration fee, application (forms furnished by request), and affidavit that the book has been manufactured in the United States. Mutual copyright privileges have been arranged by treaties between the United States and several foreign countries. The "Manufacturing clause" in our own law prevents our joining the International Convention which was signed at Berne in 1887 by practically all nations except the United States, Holland, and Russia (cf. chap. 14).

In case you have a dedication, that follows next. The verso of the first half-title page is sometimes used for a list of the author's other works—a practice to be commended from both author's and reader's point of view (cf. Grolig [54]).

The preface generally precedes "Contents." It should be the least literary part of a book and the most businesslike. It is the place to put your best foot forward, to explain your purpose, your method, the original features and strong points which you can claim. It is on the preface that the publisher often bases his notice. It is on the preface that, unfortunately, too many reviews are based; it is from the preface that the library cataloguer and the bibliographer describe your scope and method; and, finally, it is what the serious reader with little money or time to spend looks at before he buys the book. The preface is also the place to make general acknowledgments.

Just before the beginning of your text, that is, just before or just after "Contents"—just before the reader begins to read—insert your page of errata, if you are unfortunate enough to have any. Seeing this in advance, the reader will be less likely to quote or criticise the errors which you yourself have already discovered.

"Contents" usually contains only your chapter headings, but if your subdivisions are clearly marked and treated distinctly from one another, or if a considerable number of topics is dealt with in a single chapter, the entry in the table of contents may very well contain a list of your sectional or paragraph headings—sometimes even a synopsis. The "List of Illustrations" follows "Contents."

Chapter headings involve somewhat the same principles as the book title. In the "running head," or "running title" (at the top of the pages throughout the book) it is customary to have the title of the book on the left-hand page (if the title is too long, it has to be abbreviated to go into the space) and the chapter heading as the running title of the right-hand page. In books of small compass, say a single literary essay, running titles may be dispensed with. In any case, the page numbers should stand at the top of the page—the occasional practice of putting them at the bottom (presumably for the sake of variety) is, in our opinion, a great nuisance.

In the body of the chapters you may have "centre headings" or "captions" for different subdivisions of the chapter. Paragraphs may begin with a heading in bold face, italics, or small caps. The lowest grade of headings is the side heading, printed in the margin, often in italics. Such subdivisions are useful in your outline and in your writing, even though you do not use them in your printed work. They help in your logical arrangement, and in your division into paragraphs.

Your manuscript should be paged from start to finish. In many books, the introductory matter—title-page, preface, and contents—is separately paged, because it was not written until the book had gone to press. Otherwise, there is no necessity for this, as the page references in the table of contents can be inserted in the proof, and the advantages of continuous paging are obvious to any one who has "collated."

Foot-notes remind us of the reply an Italian innkeeper made to our complaint about fleas, "Every gentleman has them"—and they are not popular. Thorndike (*Scientific Presentation of History*, in *Popular Science Monthly*, Feb., 1910) says that the exposition should be "a unified and uninterrupted presentation of the complete historical process from the raw material to the finished product . . . investigations as well as results." Thus your foot-notes would be all in the text. And printers will tell you that foot-notes break up the artistic ensemble of the printed page. On the other hand, there are many things an author would like to say "by the way," source-references are demanded by his professional colleagues, and foot-notes serve the purpose without mutilating the literary continuity of the exposition. The best counsel is moderation. Consider your foot-notes carefully to see whether they do not really belong in the text. Then consider them carefully to see whether they really belong in the book at all (Morize). Your bibliographical foot-notes depend on the aim and scope of your work. A good bibliography at the end of the book or at ends of chapters may obviate a great many foot-notes.

In your manuscript, the foot-notes should stand, not at the foot of the page, but immediately following that part of the text to which they refer, clearly set off from the text by lines or spacing. If possible, number them consecutively from beginning to end, rather than page by page—as the latter can only be done in "page proof." In matters of type and style there are a number of details to be observed, e. g., the size and spacing of type, the use of italics, etc.

Illustrations also appear throughout the text. Line-drawings are usually reproduced by "line-cuts" made on zinc. The plates have the design in relief and can be printed on the same paper as the text and at the same time.

The finer half-tone and colored plates require a highly finished paper. This is undesirable for letterpress, as it dazzles the eye; consequently half-tone and photogravure plates are generally inserts. (These should not be merely "tipped in" but "guarded," so as to be firmly bound with the rest of the book.) Photography is now generally used in the process, and the original drawing should be something like a half larger than the reproduction is to be, as photographic reduction refines lines and shade. Half-tone plates are made with the use of a screen which breaks up the picture into lines and dots of varying strength, representing the various lights and shades of the original. The screens have usually from 65 (e. g., in newspapers) to 150 lines to the inch, somewhat according to the quality of the paper (cf. illustrations in Maddox [67]). This is also a relief process. In the "three-color" process different photographic plates automatically select certain colors and reject others. They are printed in colored pigments which, of course, can at best only approximate the original colors (cf. chap. 14).

Electrotype plates are used for maps and geometric figures. For reproductions of works of art, photogravure, an intaglio process on copperplate, is said to excel the other processes in delicacy and variety of tones.

Tabular matter should be planned to fit the page of the book, or the format of the book decided according to the size of the tables. Otherwise it will be necessary to have inserts made and folded in, and these are awkward, expensive, and likely to suffer with use.

INDEXING

Indexing is the last stage of your composition. You should have an extra set of page proof from your publisher for underscoring words as you index. Indexing is like air—merely taken for granted when good, and recognized as a hardship when bad. As a thankless piece of work it is sometimes rated merely as a clerical job, and most indexes are correspondingly defective. All too often indexing is shirked entirely. On the other hand, the statement that every book should include an index is an exaggeration; we do not expect an index in a novel; and we may add that if your book or article is comparatively brief, or is accompanied by a detailed table of contents or by an abstract, an index may often be dispensed with.

The general rule is to include everything in a single index. But multiple indexes are sometimes both unavoidable and invaluable, as in the great *Corpus* of Latin inscriptions, which has separate indexes of names of people, place-names, official titles, technical terms, and so on—even tables of peculiar letter forms.

It would be useful to know in advance how many pages to allow for your index, but this is practically impossible. Carlyle's index scale was 1–36, Morley's *Life of Gladstone* 1–30, Morley's *Recollections* 1–10 (the index in double columns and small print besides). (Cf. Sir Edward Tyas Cook's *Literary Recreations*, London, 1919.)

What should the index contain? The indexer's first consideration should be the author's view-point—what is in the book? Every topic, down to the most minute, is supposedly something that the author wishes to bring out—not every word, not necessarily even every proper name, for the author is concerned with topics, ideas, facts. It is well to have before you a very detailed outline or classification of the material in the book. This helps to make your index complete, helps in the selection of entry words with reference to each other rather than simply as the words occur on the printed page of the text; helps in the solution of the problem of separate entries for everything, as against main entries with subheadings; it aids you, finally, in the uses of cross-references ("See" entries) and of reciprocal and multiple references ("See also" entries).

The second consideration is with regard to use. What is the reader going to look for? The topics which the author wishes to bring out must be so worded and so arranged that the user will find them. Your problem here is the same as that of the library cataloguer, to guess where the reader is going to look. Compare your entries with the Library of Congress *Subject Headings* [1024] or with the entries in the indexes of the Dewey Decimal and Library of Congress classifications [999 and 1027]. The selection of technical or popular names for entry will depend upon whether your audience is scientific or general. The inclusion or exclusion of certain very general headings and certain very minute headings will be decided according to the probability of their being looked for. Sometimes a large subject in itself may be a very minor topic in your book. For instance, Brown [36.1] gives as example a book on *oil*, in which *Mexico* will doubtless appear a number of times. As the whole book is on oil, the index entry would be *Mexico* (not *Oil in Mexico*), and you might subdivide Mexico into *Law*, *Lands*, *Taxes*, etc.; or you might use the entry *Mexico* for only general material about Mexico and use *Mexico* again as a subheading under *Lands, Resources*, etc. On the other hand, in a book on Mexico, *oil* will doubtless appear with the similar problems of entry and subentry. In general, the descriptive or subentry material should be cut down to a minimum.

Your index, then, will consist of main entries, subentries, and cross-references (single or "See" references, and reciprocal or "See also" references). And your problem will be the selection of your entry and subentry words (direct or inverted order of words; singular or plural form of word; technical or popular terminology; specific or general; double entry under synonyms, opposites, etc., or single entry with cross-reference, etc.). (For example, cf. the *Encyclopædia Britannica* index.) Here consistency and adequate cross-reference are the prime essentials.

However, though brevity is the soul of wit, there are examples of descriptive, as against these "skeleton" indexes. In Morley's *Recollections* the index entries are made to take the place of foot-notes, explaining the identity of persons merely mentioned by name in the text, etc.

As to mechanical methods of compiling an index, authors disagree between big sheets of paper, a note-book, and cards. With large sheets or in a note-book, you have more of your work before you on the page; and you can find your place more easily in a thumb-indexed note-book than you can on large sheets. On the other hand, you will probably never allow the right amount of space on the pages for the entries you want to make, and consequently you will never have your index in alphabetical order until you have gone through the tiresome work of cutting it up and pasting it. On cards you can keep it always in order, but you have to write the entry word on every single card. When you come to edit, however, you do not have to cut and paste your cards, but simply to arrange them, cancel entry words or replace them by a dash or some other "repeat" sign, and your complete system of entries and subentries is ready for press.

You make these entries as you go through the page-proof, underscoring the words that you put in the index. It is well to indicate in the proof whether the entry is a main entry or subentry. Do not alphabetize the cards as you go; but keep them in the order in which you write them, so that you can revise and, if necessary, add things that you have missed the first time. This is another advantage in the use of cards.

As to the typographic style: Do not capitalize entry words unless they are proper names or book titles. Punctuate chiefly with commas. Let the page numbers (or entry numbers, e. g., in case of numbered bibliographies) follow immediately after the entry, where they are easily read, instead of tabulating them at the right margin. Various faces of type may be used: bold face for the main entries or for the most important of a number of page references, italics or bold face for subheadings (if the arrangement is "condensed style"), etc.

The arrangement may be in "indent," "repeat," or "condensed" style. In the first, the entry word projects one or two "ems" into the margin beyond the subheadings (hanging indention). This is clearest, but is expensive in space, and display can be obtained by bold-facing or capitalizing the entry word, keeping a uniform margin. Where subentries are used, each should be on a separate line, but the chief consideration is rapid-reference use. The repeat style generally uses a dash or repeat sign instead of repeating the main entry. But repeat signs and indention should be used only in place of the same entry word with the same sense—don't say *Fish*, *John*, then *Ditto*, *Stewed*. In the condensed style, subheadings follow directly on main entries, without dropping a line or indenting. This is the style of the *Britannica* index, and it takes twice the time to find what you want as it would if the subentries were put each on a separate line. On the other hand, if the subentries were thus spaced out, the *Britannica* would have three or four index volumes, instead of one.

PUBLICATION

For the publisher, a book has "three purposes; first to sell" (Princeton University Press *Almanac*, Jan., 1923). You will select a publisher who at least sells your "line of goods." Notice the publishers' imprints in your own bibliography; second, if need be, consult such classified lists of publishers as *What*

Editors and Publishers Want 1617. You approach your publisher with your manuscript or a detailed outline, and with a concise letter resembling your preface, showing the place and need for your work. The publisher's acceptance of the work, and often the advertising circular, is based on the author's summary.

But there is the further condition that the book must sell *at a profit* to the publisher. He may be satisfied to "come out even" on a book and an author which seem to open up a field for future publications, but in general his contracts with authors must be calculated to insure him the costs of production and distribution and at least *some* profit. The usual contract in America is on a royalty basis, the royalty being paid on the number of copies sold, not on the number of copies printed. The usual royalty is ten per cent., the publisher expects a profit of about the same amount, and the rest goes for the cost of production, advertising, commissions, and so on. Roughly, the sales price is generally three times the cost of production, one-third going to production, one-third for distribution (trade discounts and commissions), and the other third to profit, divided between author and publisher. Boswell quotes Dr. Johnson in his sixty-seventh year, "No man but a blockhead ever wrote except for money," but most of you, in the case of your learned dissertations, will find that, blockhead or not, the author has to pay, or, what amounts to the same thing, to guarantee the cost of production. The publisher may then either buy from the author at wholesale price or pay a larger percentage royalty, allowing himself enough for the cost of selling and "overhead."

If the publisher assumes the whole financial risk, the author is not entitled to any large number of copies, to use as a sort of academic advertising among his profession—in fact, he may obtain only some half a dozen. For the review list, the author of a book on some special subject will have a list of journals in his own field which should be added to the publisher's general list—perhaps a new and different list for each new work. The publisher's review list, say for a book on Latin palæography, should not be limited to the book sections of the leading newspapers, the *Dial*, the *Nation*, and other similar, excellent, but non-academic periodicals, but should include the more specialized journals, both at home and abroad, which palæographers are sure to read.

FORMAT

The publisher will, of course, know the fashions in books, the trade conditions, etc., and, accordingly, suggest the proper format, but the author will have certain requirements, for example, a page large enough for his tabulations. The student should be familiar with the different standard sizes (octavo, duodecimo, and so on), their original meaning according to the number of folds made in the sheets of paper as well as their modern equivalents in inches and centimetres—for his own publications as well as for the purposes of description of other books. (Cf. McKerrow [1542].) The public for whom the book is intended, the uses for which it is designed, and the price at which it is to be sold, are considerations affecting the selection of format as well as the selection of literary style and illustrations, type-face, etc. (Updike, *In the Day's Work* [86]). Also the subject-matter itself often seems to demand a certain format and style; for instance, a manuscript catalogue in which we were interested disappointed us by having the format of an ephemeral, handy exhibition-catalogue—quite unlike the solid appearance of the many catalogues of great manuscript collections.

PRINTING

You may have occasion to decide whether you will have your work done in hand-set type, by the Lanston monotype, or by the Mergenthaler linotype. The process of monotype printing begins with making a perforated paper roll (like a piano-player record), which, when put in a machine containing matrices, selects them. The matrices are then brought into contact with molten metal and the type is cast, each letter by itself but arranged automatically on a galley in "justified" lines.

The linotype machine also operates with a keyboard, but directly upon the matrices; the matrices drop down from their storage receptacles, are brought into line in another receptacle, and then brought into contact with the molten metal. The result is a solid line of type—setting and casting done in one operation. It is faster than the monotype because there is one less process, but the work is likely to be less even, as the slugs sometimes cool unevenly. In making corrections, the compositor has to reset the whole line, and, therefore, may make new mistakes in the second proof; whereas in hand-set and monotype work the correction should involve change only at the points where corrections are to be made.

The standard type for most book work is of the height known as 12-point, or *pica* (cf. any printer's specimen book). There are 72 points to the inch. Measurement of width is stated in "ems" (i. e., width of the type letter M) or, sometimes, in the narrower unit "en." The units of area are the 6-point em, 8-point em, etc.

In case the author wishes to be his own "lay-out man," he will first decide his format (the dimensions of his page). Artists in the trade tell us that the typographical unit surface to be considered is not the page but the two pages facing each other. The inner margins should be the smallest, or else the eye is troubled by the double width of white between the two pages of text; the upper margin should be slightly wider than the inner; the outer nearly double that of the inner; and the bottom slightly wider than the outer. Their actual dimensions and those of the type page are determined with relation to each other.

Once the size of the type page is decided, the author must decide as to size of type (e. g., 10-point or 12-point), and as to the amount of "leading"—i. e., spaces between lines. On a basis of 2-point leads, for instance, a line of 8-point type "leaded" would occupy the same height as 10-point "solid." Thus the number of lines to the page is decided. The length of line is reckoned in ems at the rate of 6 ems 12-point or "picas" to the inch (i. e., a certain number of letters plus so many 1-em or 2-em spaces). The size of the type and the amount of "leading" between lines are the prime factors in legibility.

A separate estimate will be made for special matter. Footnotes and long quotations are printed in smaller point, and "hair-spaced" or "set solid," or, sometimes, in a different "face"—e. g., italics.

Aside from mere questions of size, a piece of type is a complicated unit having seventeen different parts (Maddox [67]). The layman author, however, will be interested chiefly in the part which is reproduced on the printed page, i. e., the type face. To distinguish the different varieties involves attention to: (1) Serifs (flat, round, bevelling, sans-serif), which finish off the letter stems at top and bottom; (2) Color value, which is dependent on the thickness of the body strokes of the letter, and also on the kind of paper used (e. g., soft or hard finish); (3) Proportion, particularly in regard to the ascending and descending strokes (for instance, it is the short descenders which make Elzevirs poor reading—Updike, *Printing Types* [1571]); (4) Basic forms or shapes which printers have inherited for the most part from the mediæval scribes (roman, italic, gothic, etc., cf. chap. 13). The roman type used by Nicolas Jenson in the fifteenth century is commonly said to be the most beautiful and legible type ever made, and has been closely copied in some contemporary "fine printing." The most popular "old style" is based on the work of William Caslon, "the greatest of English letter-founders" (Updike, *op. cit.*), in the early eighteenth century. (Cf. a selection of "six representative standard roman type-faces" from the thousands now on the market, Gress [53], p. 169 ff.; also Updike, *Printing Types*, v. 2, p. 228 ff.) The Jenson style "usually has a larger-faced character, with less difference in height between long and short letters" (Aldis [1512])—that is, it is perhaps superior in color value, but inferior as regards proportion, to Caslon old style.

"Modern face" shows to advantage on smooth-finished paper, is "admirable for books of a scientific or technical character" (Updike), and is probably the type most familiar to the general reader since it is "in all the papers." (In addition to Updike, Aldis, Maddox, and Gress, to whom we are much indebted, cf. Morison's [71] examples of "good general forms," the Mergenthaler and Lanston companies' manuals and specimen books, the American Typefounders' specimen book, etc.)

Except for display you will generally avoid other types (gothic, italic, etc.), although in certain kinds of books special types are clearly more in keeping with the subject-matter than the ordinary types would be (Updike [86]).

The comparative legibility of type faces should be of particular interest to prospective authors, who are more interested in selecting the right instruments for their purposes than in the mechanical working of the instruments. There is a good chapter on this in Koopman's *Booklover and His Books* [23] with references to psychological studies in legibility of type, and an interesting critical summary of the great variety of experiments that have been conducted, in the report of the British Medical Research Council [70]. But while there have been numerous experiments in the psychology and pedagogy of reading, and in the "legibility" (i. e., visibility) of type, what we may call the *readability* of type has not lent itself to the formulation of rules or standards.

The printing of large editions is usually done from plates, e. g., stereotype or electrotype. The stereotype is made from the type as set in page form, by pressing in layers of thick unsized paper, just as in the process by which the archæologist makes "squeezes" of inscriptions. This paper, when dried and hard, serves as a matrix for a stereotype plate of the entire page. The ordinary stereotype will print 15,000 to 20,000 impressions and is used almost exclusively for newspapers, etc., where cheapness and speed are prime requisites.

The electrotype plate is made in a similar fashion, but on a wax matrix with electrolysis of copper, in a thin shell, backed up with lead for sufficient strength and thickness. This gives a clearness and range of impressions impossible with the stereotype. It can be cut, and corrections can be soldered in (of a single letter or of several lines). It is the cheapest form of type to store, in case reimpressions or new editions with only slight corrections are likely. (For detailed explanation and illustrations of printing-presses and other machinery, cf. Maddox, and, better still, observe them at work in some large up-to-date printing-establishment.)

PAPER

In case the author has to select the paper for his book, he may be embarrassed either by a wide range of choice or by a lack of choice. The history and technique of paper-making need not concern us here, but such an outline sketch as that in Smith's *Printing and Writing Materials* [1500], or that in the *Encyclopædia Britannica,* is an excellent introduction to the different paper materials. At the present time they are chiefly wood-pulp, rags, and certain grasses known as *esparto*, though various sorts of "waste" are made use of—including waste paper. Within the last seventy-five years wood-pulp has become the chief component. By itself, however, it is spongy and friable, and the strength of the paper depends on the percentage and quality (e. g., length) of the fibre (wood, rag, or grass) used with the wood-pulp. In addition to strength, book paper should have a certain amount of elasticity, power of resistance to creasing, bulk, opacity, texture, and surface (cf. Cross and Bevan [44]). Linen rag-paper is the strongest, and a proportion of, say, sixty to seventy-five per cent rag stock is necessary for even relative permanency.

PROOF-READING

You should receive two proofs—"galley proof" and "page proof"—and, sometimes, "plate proof." Changes, additions, and transpositions should be made in galley proof; such changes in page proof might mean rearranging the type for a whole chapter. You will find that the printer has already given the galley a first proof-reading, and may have inserted some queries, which you should make it a point to answer. In marking proof, there are certain regular established symbols which you may find both in publishers' manuals and in the dictionary. Your first reading of the proof should be mechanical, word by word, regardless of the sense. A second reading of the proof, without the copy, is also a great help, for example in matters like punctuation and the unfortunate "author's corrections." Certain mistakes and infelicities of expression come out more strongly in print than even in typewritten manuscript.

Your manuscript should be returned to the printer along with the galley proof, because, in some instances, you may have to tell the printer to "compare copy."

In the page proof you should have to look only at the places marked for correction, except in linotype work, where new mistakes may occur. But it is also well to see that no lines are transposed or omitted, especially at top and bottom of page, that the foot-notes occur on the proper page, and that the lines and margins are "justified."

BINDING

Coutts and Stephen [43] list the principal requisites of a good binding as: flexibility, cheapness, suitability of style.

For books of light weight and only occasional use, the cheapness of the publishers' "case bindings" recommends them. In these the covers (cases) are made in lots, like ready-made suits, lettered in the press, and attached to the back by a glued strip of paper or cloth. Sometimes reinforcing strips are added to the "end papers." Heavy reference books require a special lining and reinforced joints; sometimes they are "laced" (i. e., the threads of the sewing are drawn up and made fast inside the covers). In the paper-covered books the back of the cover is glued tight to the back of the book. Some bound books have tight "flat" backs, but big books which are expected to open flat should have hollow, rounded backs.

The cover material may be paper, pasteboard ("boards"), cloth or buckram, or leather (calf, morocco, etc.). Those of us who are not bibliophiles will prefer buckram or cloth to leather, as cheaper, less likely to be faulty in preparation, and less subject to deterioration through use (or even through atmospheric corrosion).

There is sometimes question of suiting the style of binding to content—Manly [68] suggests that red would not be the most fitting color for a book of funeral customs, and we have seen a number of doctor's theses bound in green!

Coutts and Stephen should be consulted for illustrations of binding processes, samples of binding materials, etc. But, as in the case of printing, an adequate notion of materials, machinery, and processes can be got only in the plants where books are manufactured. (Cf. also other manuals of bookbinding, e. g., Pleger $^{75.2}$, Bailey $^{35.1}$, etc.)

Be sure to get a proof of the lettering of the binding. We have seen, recently, a paper-covered "unbound" thesis, in which the author had had to correct by hand the spelling of a word on title-page, front cover, and back of every copy in the whole edition.

CHAPTER III

SUBJECT BIBLIOGRAPHY IN GENERAL

In the chapter on Practical Bibliography, we passed from the discussion of methods of reading, research, and collection of material directly to the various topics grouped under the general heading Authorship and Composition. This chapter returns, for its starting-point, to the collection of material. The points emphasized in this connection were: exhaustiveness and accuracy in compilation and careful criticism in annotation and selection; mechanical methods; the necessity of verifying citations at first hand; the use of library catalogues, particularly the printed catalogue-cards issued by the Library of Congress; the methods of "applied" bibliography; the varieties of enumerative bibliography as regards scope and details of content, etc. We have now to take up the discussion and enumeration of bibliographical sources; and we shall begin with those which are the obvious and logical, first and most important to research students in special subjects—i. e., subject bibliographies.

The general bibliographer cannot hope to be equally complete and authoritative for all the special subjects included in a university curriculum, nor could an adequate survey of the literature of all subjects be given within the small compass of this introductory work. If we can give the student the starting-point for such a survey, our purpose is accomplished. Our lists of bibliographies are designed: (1) to illustrate the different types of bibliographical sources with which you have to work in the thorough investigation of any subject, (2) to give some indication of the bibliographical equipment in each general field, and (3) in each field which is properly organized, bibliographically speaking, to give the fundamental works which will point the way toward a survey of the complete bibliography of the subject.

Theoretically, each field may contain various types of bibliographies, which we may describe as:

(1) Encyclopædic, reference works, which include bibliographical references to other and more detailed sources of information.

(2) Bibliographies of bibliographies.

(3) Bibliographical manuals, designed to give a survey of the chief works in the field. (A select bibliography and a bibliography of bibliographies combined.)

(4) General bibliographical introductions, discussions.

(5) Universal, or Comprehensive, bibliographies which attempt to list everything published on the subject.

(6) Partial bibliographies. In addition to the partial bibliographies such as those listed below, which are definitely limited in scope, there are the various "contributions toward," etc.

(7) Bio-bibliographies, i. e., biographical dictionaries of authors, with lists of books by or about them.

(8) Personal, i. e., lists of books by or about an individual author.

(9) Various types of select bibliographies, which undertake to list the best books on the subject—for source material, for general reference use, for the general reader, etc.

(10) Various other "special" bibliographies (i. e., of books peculiar in matters of authorship, publication, make-up, or individual history): lists of rare books, books of a certain period, early illustrated books, etc., lists of works still in manuscript, lists of government publications, etc. (Cf. chaps. 9, 12–14.)

(11) National subject bibliographies, limited to the publications on a given subject in a given country (e. g., to Danish mathematical works [811]) or to publications on the subject only so far as it relates to the country (e. g., Bibliography of North American Geology [896]).

(12) Topical bibliographies, limited to special topics within a field, such as the bibliography which forms an essential part of the doctor's dissertation.

(13) Periodicals which, with varying degrees of completeness and fulness of description, list the books and articles in a

given field published within a given period of years, months, or weeks.

Under periodical bibliographies we have to distinguish several different types, according to the amount of information given: (1) those which merely enumerate in alphabetical order (like the *Bibliothèque de l'École des chartes* [158]) or in classified order (like the *Bibliographie* supplement of the *Zeitschrift für romanische Philologie* [636]); (2) those of the German *Jahresbericht* type which give a critical survey of progress within a given period, in consecutive and sometimes readable form, but awkward for reference purposes, and with or without full bibliographical information as to place, date, and collation (e. g., *Jahresberichte der Geschichtswissenschaft* [169], *The Year's Work in Classical Studies* [620]); (3) those which pay especial attention to analysis of periodicals (like the *Revue de philologie* [625]); (4) those which limit their scope to works on the subject produced in a given country (like the annual American bibliography in the *Modern Language Association of America Publications* [540]); (5) those which classify, describe, abstract, and, at longer periods, index (like *Chemical Abstracts* [866]), falling short of perfection only in the lack of critical notes and constantly up-to-date indexes; and (6) the review journals, the great advantages of which are their frequency of publication, and their detailed description and criticism (e. g., the *American Historical Review* [157]). (Cf. a good discussion of "kinds of bibliographies" in the field of law in Hicks's article [411].)

Finally, we should make reference here to the chapters on general bibliographies—Special, National, and Universal. The earliest lists of new books will be found regularly in the national and trade periodicals; the earliest records of new discoveries have often to be traced through newspaper and periodical indexes; often the best, most extensive, or only bibliography of a subject is to be found in bibliographical collections and journals—e. g., the Bibliographical Society of America's occasional reports [1427], the New York Public Library's extensive and up-to-date analytical catalogues (published in their *Bulletin* [1444]), the constant stream of *Lists of References* issued by the

Library of Congress, the A. L. A. *Booklist* of best books [1185], the *Bibliothèque de bibliographies critiques* [1428], the *Useful Reference Series* [1453], etc. (cf. chaps. 9–11).

In no department of knowledge is the bibliography as yet thoroughly, efficiently, and perfectly organized. We have not entirely outlived the ancient and mediæval periods of scholarship when the individual scholar hunted out his own material —learned in the hard school of experience—and we are still in the dawn of the realization of the unmanageable bulk of printed literature in any subject. Langlois, in his *Manuel de bibliographie historique* [104], gives the explanation that bibliographical work for publication doesn't pay. The scholar cannot make his living by it, nor his reputation, as well as by more original research. Young students lack the mastery of the field and its bibliography; older students, who have adequate knowledge, no longer need such a publication, and for one Langlois or Lanson [647] who publishes for altruistic reasons, the other ninety-and-nine authorities in their special fields do not find time, occasion, or inclination to publish purely bibliographical works. Furthermore, the few who do publish are apt to consider their work ended, just as they do when they have said the last word on some topic of knowledge. In any case, they die in the course of time, while "of making many books there is no end" and bibliography must go on for ever. A survey of the incomplete, discontinued, and unre-edited bibliographies in any field forms a rather pathetic commentary on the difficulties of organization and co-operation among scholars. Nevertheless, the bibliography of a century, once well done, need only be supplemented next time, and, when a continuator does take up the work after an interval, his undertaking is made possible only by such earlier works. Thus, the scholars who are collaborating in the *Guide to the Study of History* [99], under the auspices of the American Historical Association, have been, so to speak, brought up on Langlois's *Manuel*, published twenty-five years ago.

This guide to historical literature is an example of co-operative bibliography, which is a method more hopeful of results than entire dependence on individual initiative, but which also often fails to provide for continuation and suffers under perhaps more than the usual handicaps of collaborate authorship—delays, inequalities of information and ability, differences in point of view and method of treatment, duplication, omissions, etc. Any co-operative scheme, to be successful, must finally depend on the judgment of one or, at most, a very small number of editors, with final authority. (Cf. chap. 11, our criticism of the *Index bibliographicus* [1438].)

When co-operation is centralized in an institution, there is better promise both of permanency and of systematic, thorough, and uniform method. The *International Catalogue of Scientific Literature* [786] and the Zurich Index [912] (Concilium Bibliographicum) are excellent examples of this system, as well as of the risk that any subsidized institution runs of being forced to discontinue through withdrawal of the subsidy.

Hastings's *Some Recent Events and Tendencies in Bibliography* [55] concludes: "co-operation I regard as a makeshift only . . . a bibliographical trust . . . is the most economical agency." Hastings does not mean by this the ordinary trade catalogues and bibliographies, but such publications as the *Reader's Guide* to periodicals [1161], the *Industrial Arts Index* [981], the *Agricultural Index* [932], etc., published by the H. W. Wilson Company of New York. These are efficient and successful self-supporting commercial enterprises and take full advantage of up-to-date machinery—notably the linotype composing-machine. These and other similar commercial enterprises are among our most valuable bibliographies at the present time. To see the defects that go with their commercial and mechanical efficiency you will be interested in comparing them with the work of individual scholars like Langlois and Lanson. A commercially successful proposition must sell to a public larger than any given group of specialists, who are said to patronize free libraries rather than expensive publishers, anyhow. Commercial bibliographies will, therefore, often include much popular material, for which the research student has little use, to the exclusion of some of the extremely scientific and technical works which are of first importance to him. Further, the cost of production of commercial bibliographies must not exceed their income from sales; and the amount of labor and space given to critical analyses and reviews is correspondingly circumscribed.

The possibilities of the combination of business enterprise and co-operative scholarship are illustrated by such publications as the *Public Affairs Information Service* [346] (H. W. Wilson Company) and the *Magazine Subject Index* [1155] (F. W. Faxon Company)—both with the aid of collaborating libraries.

Certainly so far as concerns subject bibliography, the best possibilities seem to lie with the large learned and professional associations, for the combination of satisfactory scholarly compilation with an efficient businesslike organization. An outstanding example is the American Chemical Society, which is broad enough in its scope, and, consequently, large enough in its membership, to issue its *Chemical Abstracts* on a self-supporting basis. The "one-big-union" organization may be less satisfactory from the point of view of smaller groups of specialists—say, in colloid chemistry—who might more profitably attend a meeting limited to men working in their own specialty. But for publication purposes, "in union there is strength." It is only to be hoped that these splendid professional abstracts series will adopt the cumulative plan, at least for their indexes.

They should also become commercialized to the extent of an honorarium to individual contributors and libraries. Bibliographies, indexes, and abstracts are becoming the vogue to an extent which involves unjustifiable demands on the time of individual scholars and library staffs in the compilation, verification, and checking with library catalogues. The American Historical Association hopes that the fruits of the labors of its committee on the *Guide* may include some sales profits which may serve as the nucleus of a fund for further bibliographical work. The subvention of the Rockefeller Foundation toward the first ten years' editorial and office expenses of the new *Biological Abstracts* [911], and the assistance rendered by the Laura Spelman Rockefeller Memorial, the American Council of Learned Societies, and the National Research Council in raising money for bibliographical work, point in the right direction and, let us hope, may eventually lead to some reduction of the sacrifices of the individual compilers in these various enterprises.

There are certain characteristic defects common to most bibliographies, regardless of authorship, subject, or scope. The first is provincialism. Few, if any, scholars are equally familiar with all languages. This is especially true in America as regards Slavic and oriental languages. There are also limitations of time and space. During the War, when international communication was much restricted, scientists made discoveries in entire ignorance of the fact that other scientists in other countries had recently made the same discoveries. Often, too, the bibliographer cannot lay hands on a publication of which he has heard a great deal. (We once had to mark nearly a fifth of the titles in a brief bibliography as not directly known to us, and, even though there was no likelihood that nearer acquaintance with these titles would materially alter the text of our work, some of them might have been worth quoting and many of them might have been omitted.)

Secondly, every bibliography is out of date as soon as it is published, if not before. For example, if you were to take Langlois as a starting-point for some historical investigation, you should remember that many histories and many bibliographies of history have been published in the last twenty-five years. Your historical reference books are more recent, but still not "up to the minute." Consequently every book you use must be brought up to date with the aid of periodicals and references in current reports, pamphlet material, etc.

Periodical bibliographies have the same limitations, in varying degree. You will find in our list one or two periodicals under each subject, but, in experience, you will find that no one of them is universal, and that your current reading-list will have to include at least one periodical from every one of the major countries. Also they have to be brought up to date with national and trade bibliographies (cf. chap. 10).

Finally, as you glance over the contents of the books in our list, you will be interested to notice how indistinctly, after all, the line of division is drawn between the different branches of learning. Along with our extreme specialization in studies—or perhaps as a reaction to it—there is a tendency to revert to the broader scope of the divisions of study in earlier ages. The orientalists and classicists have traditionally concerned themselves with whole civilizations of nations or periods. But the interest of historians, for example, in the general culture of a nation (literary, artistic, economic, scientific, and technical), and not merely in political history, is a comparatively recent development; and the same thing is true in the fields of modern literature and science. The periodicals in allied fields must be consulted as well as those devoted to your specific field. "Border-line" material is too often overlooked, though it may be of fundamental importance. Thus even the specialist who already knows the bibliography of his own field better than we can tell him should find our introduction a useful guide to relevant material in other fields. "Alle Wissenschaft ist auf einem Urgrund zurückzuführen. . . . Alle Wissenschaftszweige sind auf einander angewiesen." (Otto Lerche, in *Arch. f. Bibl.* 1 (1926), p. 129 ff.)

The enumeration of types and peculiarities of bibliographies on special subjects could be more detailed. Every single compilation has its own peculiarities, whether of aim, extent, or method. You will have occasion to use them all, such as they are, so far as they fall within your special fields—not all at the same time necessarily, but different ones in the different stages of your work. For information on specific points you will follow out the references included in encyclopædic reference works, in monographs, and in lists of best books. For a general survey of the literature of your field, you will begin with a bibliographical manual or bibliography of bibliographies. In your own bibliographical compilations you will use every possible resource: the lists which aim at exhaustiveness, so as to know all that has been done; the biobibliographies of scholars whose contributions to your subject you must know and estimate; your local library catalogue and union lists, so that you may know what books are available for your work; and, in addition to all these subject bibliographies, also the various national, special, and universal catalogues and lists which are most important when other bibliographical sources fail, but which must also be consulted for the verification of inexact and uncertain references and for the sake of completeness. Finally, all these must be brought up to date by the use of periodical bibliographies and reviews in special subjects, and the various general bibliographies covering all subsubjects (cf. chaps. 9–11).

CHAPTER IV

SUBJECT BIBLIOGRAPHY

HISTORICAL AND SOCIAL SCIENCES

The starting-point for the survey of the literature of a subject is the bibliographical manual, and we shall begin, in the field of history, with Langlois's *Manuel de bibliographie historique* [104] pt. 1 ("Instruments bibliographiques") which is the best work of the sort that we are acquainted with. It includes "not all assuredly, because there are thousands of them." Langlois has his prejudices, e. g., against lists of "best books" which he condemns *en masse* regardless of the fact that, including the best works in existence at a given time, they are valuable as introductions to the literature of the periods covered; and, for the earlier modern centuries, the best is very often all that is necessary for reference purposes. However, his own selection is excellent, and the decided opinions add a feature of interest to his work that very few bibliographies possess.

Since the publication of Langlois's second edition (1901), many new editions and new works of bibliography have superseded the titles he listed or have filled lacunæ. For up-to-date lists the student will refer first to the forthcoming *Guide to the Study of History* [99], compiled by a committee of the American Historical Association. This is "intended for distinctly popular use" and prefers, though by no means exclusively, "works now on the market or generally available . . . publications in English which have appeared during the last fifty years," and is written in itemized style, with the utmost conciseness in annotations. Thus Langlois's manual will remain a classic of bibliography in the full, "narrative" style, and may occasionally supplement the *Guide* in French and other foreign historical writings. Like Langlois, the *Guide* will be indispensable also to students in other fields than history, since it includes economic, social, and cultural history (philosophy, religion, education, art, and the sciences), the auxiliary sciences (palæography, diplomatics, etc.), and general bibliography.

Coulter's brief (too brief) *Guide to Historical Bibliographies* [97] and the *Enquête pour l'orientation des recherches dans la bibliographie historique des différents pays* of the International Committee of Historical Sciences (begun in its second *Bulletin* [167]) are compact and useful bibliographies of bibliographies (the latter is particularly excellent as a list of historical periodicals).

Langlois and the *Guide* are both bibliographies of bibliographies and select bibliographies—in fact the *Guide* was called into existence by the "need for an up-to-date work of similar character" to Adams's *Manual* [90]. Adams was cited by Langlois as an example of the futility of bibliographies of best books in the field of universal history, but both the selection and the excellent and readable annotations have proven so useful that reprints of the third (1889) edition are still in use and will not be entirely replaced by this new *Guide*. (Cf. also Herre's useful German selection [103] and Andrews's well-annotated selection [92] treating "every phase of the subject as far as it bears on the interests of the teacher.")

Books which attempt a consecutive account of all history are, in general, satisfactory in neither text nor bibliography. H. G. Wells's *Outline*, for example, has been a successful piece of literature and an interesting version of history, shaped in accordance with the author's theory of social evolution. On the other hand, its historical value is seriously discredited by this *ex parte* treatment; and its bibliography is negligible. At present, the only valuable reference works, giving scholarly surveys and bibliographies, which lead the student eventually to the detailed literature and information in the various divisions of history, are works of composite authorship, such as the *New Larned* [105] and the assembled *Cambridge* histories [93-95].

The three *Cambridge* histories (Ancient, Mediæval and Modern) will together form the best systematic work on universal history, and each of the three is in itself a series of works by different authors on the different periods. Together they aim to present a "chronological narrative of continuous development," which "moves in a succession to which the nations are subsidiary. Their stories will be told here, not for their own sakes but in reference and subordination to a higher process." The element of unity, however, had to be sacrificed because of the largeness of the subject and the consequent adoption of the principle of collaborate authorship. The different chapters overlap and there are some gaps. This is particularly true of the bibliographies. Some chapters have a bibliography of bibliographies leading to an adequate survey of the literature; others have merely a select bibliography (sometimes starring titles which contain bibliographies). Other chapters include bibliographies among general and reference works, leaving the user to infer which titles are specifically, and which are only incidentally, bibliographies. Also there is considerable repetition of general titles in different special divisions. However, taken together, there are in the *Cambridge Modern History*, for example, just about an even hundred bibliographies of bibliographies scattered through the twelve volumes, and the other lists (sources, secondary authors, etc.) are excellent topical selections. The bibliographies of the three sets taken together thus form both a bibliography of bibliographies of history and an extensive select bibliography. The chief lacks are an author index and more annotations. The reader would like to know, not only why certain titles have been selected, but wherein the different titles selected on a given topic differ from each other in scope, treatment, extent, etc.

In addition to strictly historical subjects these volumes contain a variety of other special topics, select bibliographies of literary history, of individual English authors, of economic history, of the history of science, etc.

The *New Larned History for Ready Reference* [105] is an example of the brief dictionary type of reference book, as against the systematic arrangement of topics in universal history. The articles are in "the actual words of the world's best historians, biographers, and specialists," and are accompanied by exact citations from the works quoted and many other references. It includes, thus, select bibliographies of works in English on all the topics covered. The alphabetical "list of works quoted"

(v. 12, app. 2), alone, runs to five or six thousand titles, and, if published in classified form, and if it had the same exact indications of imprint, volume number of periodicals, etc., as the citations in the text, it would constitute a very interesting English bibliography of universal history, of secondary, popular character. It would be more up-to-date and more consistent than the older volumes of the *Cambridge* histories, though of more limited scope in language and scholarship.

The day of bibliographies attempting to list all books, or even all books of importance on all history, is long past, and our only examples of them are a century or two old, when scholars still clung to the idea that the essentials of all knowledge could be mastered by at least a favored few. Such was the scope of Matthias Bartels's *Biblionomia historico-politico-geographica; continens secundum seriem alphabeti omnium fere authorum nomina, qui de imperijs, regnis, rebus publicis, provincijs, insulis, urbibus, montibus, fluminibusque scripserunt* (Venice, 1682)—all in 232 pages. Less than a hundred years later, 1772, Lenglet du Fresnoy's mere "Catalogue des principaux historiens" occupied six of the fifteen volumes of his *Méthode pour étudier l'histoire* [106]. Some older library catalogues of historical books were of quasi-universal scope, but there are few of recent date (e. g., that of the British Foreign Office Library [98]). Nowadays our historians do not specialize in history in general, but in the history of some special period, country, or topic.

In the field of ancient history, the *Cambridge Ancient History* constitutes the starting-point for the historical student, but, in general, the histories of ancient and oriental countries form part of the fields of oriental and classical studies (cf. chap. 5). Otto's discussion of active topics in the *Kulturgeschichte des Altertums* [107] constitutes also "ein Überblick über neue Erscheinungen."

Mediæval history is very well equipped with bibliographical works. Paetow's *Guide* [108] is an excellent manual, including lists of general, historical, and auxiliary bibliographies, as well as select lists on the various divisions of mediæval history, of "all books, valuable for a study of mediæval history, which are now in this library [University of California], and, in addition, all others on this subject which, in the opinion of the author, should be acquired . . . in the near future." A fairly minute classification, supplemented by critical notes and an alphabetical index, affords both the justification of the selection and the necessary guidance for the student's selection for his special needs. With such a manual at hand, there is no occasion to discuss here even such famous works as the comprehensive bibliography by Chevalier [96], the source bibliography by Potthast [109], Gross's *Sources and Literature of English History to 1485* [130], etc.

The most comprehensive bibliography of modern history is contained in the *Cambridge Modern History*. Special periods have been more fully dealt with, e. g., Smith's extensive list on the Reformation [111], Hazen's select list for the period 1815–1924 [102], and the numerous national, international, and topical lists on the European War (e. g., Prothero [110]).

Bibliographies of national history are so varied and numerous that we can only give space to the bibliographical manuals, or the best substitutes for them, and to outstanding or recent examples of more special types. The best starting-point for American history is the manual by Channing, Hart, and Turner [121], which has a general section of "Bibliographical aids," and a special section of bibliographies in each of the selected lists on special topics, periods, and localities. The "critical essays" on sources, etc., in Winsor's *Narrative and Critical History* [154.1] (pub. 1884–89) are still a mine of information on topics before 1783.

The library catalogue of the Church collection [123] is a famous period bibliography. Smith's union catalogue of *Pacific Northwest Americana* [149] illustrates the local type. Personal bibliography may be illustrated by Leach's bibliography of Woodrow Wilson's writings [277]. In the category of special bibliographies cf. Hasse's *Index to Economic Material* in state documents [1098] (cf. also chap. 9), Matteson's *List of Manuscripts concerning American History* [118], etc.

There is no complete bibliography of American history except for publications of 1902 ff. listed in the annual *Writings* *in American History*[161]; cf. also the current "Bibliographie américaniste" in the *Journal* of the Société des Américanistes de Paris[1202].

Many American histories and bibliographies include material on all North America or all America (e. g., *Writings on American History*, Winsor, and the national bibliographies—cf. chap. 10). But there are a number of works specifically devoted to the other special countries. Trotter's recent *Canadian History, a Syllabus and a Guide*[152] attempts to relieve "the relatively unorganized state of the literature," "from the teaching point of view," and while the main emphasis is upon "a selected assortment of reasonably accessible material," the list of bibliographies "has been made as complete as possible." An annual *Review of Historical Publications Relating to Canada* was begun in 1896 and (1920) developed into the quarterly *Canadian Historical Review*[159], which devotes from a third to a half its pages to current lists and detailed reviews.

For Latin-America, Keniston's *List of Works*[134] provides, "if not a complete bibliography, at least a list which may serve as a basis for an eventual definitive work." The selected lists do not include "works on the special period since 1830," but the full lists of general works and bibliographies make it a very valuable manual. For the later period it may be supplemented by Hoskins's *Guide*[133], though this is merely a selection of books in English. The best current source is the *Hispanic-American Historical Review*[1339]. The most complete list of bibliographies is Jones's *Hispanic-American Bibliographies*[1340]. (Cf. other national bibliographies, chap. 10.) As a recent example of the bibliography of the history of a single country, cf. Trelles y Govin's *Biblioteca historica cubana*[1346] (including titles of Cuban contributions in all fields of learning).

English history, with the exception of the mediæval period (to 1485), covered by Gross[130], is a typical example of deplorable bibliographical lacunæ. There is in prospect, however, a comprehensive bibliography, under the joint auspices of the Royal Historical Society and the American Historical Association. Meanwhile, one must make the best of the bibliographies found in such reference works as the *Political History of England* [144] and the more general *Cambridge Modern History* (both works of co-operative scholarship); in reading-lists such as Cannon's *Reading References for English History* [117], those in Morgan's *Guide to the Study of English History* [141] ("comprehensive so far as secondary works are concerned, but may be found disappointingly brief for sources"), and in lists covering certain periods or certain library collections, such as Gerould's *Sources of English History of the Seventeenth Century* [129] (based on the collection in the library of the University of Minnesota). An important bibliography of material of special kind (i. e., other than ordinary books) is Bloom's *English Tracts, Pamphlets and Printed Sheets* [1047]. These last two and Kingsford's *English Historical Literature of the Fifteenth Century* [135] are also examples of source bibliography as well as period bibliography.

The chief bibliography of French history, down to the seventeenth century inclusive, is the great *Sources de l'histoire de France* [150], by Molinier and others. It includes a certain amount of secondary sources, treatises, etc. (i. e., a select critical list), but for a general manual one must still refer to Monod's *Bibliographie de l'histoire de France . . . jusqu'en 1789* [140] (1888). This was planned along the lines of Dahlmann-Waitz's *Quellenkunde der deutschen Geschichte* [124], but is much more selective than the later editions of Dahlmann-Waitz. The first part, "Recueils et ouvrages généraux," includes bibliographies, the auxiliary sciences, sources, and secondary works; part two deals with special periods. For works on French history after 1789, consult Caron's *Bibliographie des travaux publiés de 1866 à 1897 sur l'histoire de la France depuis 1789* [119]. The greatest comprehensive bibliographies of French history are LeLong [137] (a classic, 2d ed. 1768–78, including 48,223 titles) and the Bibliothèque Nationale's *Catalogue de l'histoire de France* [142] (1855–95, with later supplements and indexes). As an example of period bibliography, cf. Caron's *Manuel pratique pour l'étude de la revolution française* [120].

For Germany, Loewe's brief selective *Bücherkunde* [138] will serve as an introductory manual, now that Dahlmann-Waitz [124]

(8th ed., 1912) has become so comprehensive (although it does not pretend to include absolutely everything, it has 13,380 numbers—often several titles to a number—and probably omits nothing of importance). For the mediæval period, we have an important reference work, with topical bibliographies, in Meister's *Grundriss*[131]. Lorenz's[139] and Wattenbach's classic work, *Deutschlands Geschichtsquellen im Mittelalter*[154], are followed by Wolf's elaborate source bibliography of the Reformation period [155]. A recent example of local-history bibliography is Bemmann's *Bibliographie der sächsischen Geschichte*[114].

Dahlmann-Waitz also served as model for Pirenne's excellent manual, *Bibliographie de l'histoire de Belgique*[143] (covering the Netherlands to 1598 and Belgium alone to 1830). The Dutch *Repertorium der Verhandelingen en Bijdragen . . . in Tijdschriften en Mengelwerken*[145] is a monument of this type of special bibliography (cf. its long list of periodicals analyzed).

For Italy, cf. Calvi's bibliography of bibliographies[116], etc.

For the Scandinavian countries, cf. Erichsen and Krarup, *Dansk historisk bibliografi*[125]; Warmholtz, *Bibliotheca historica sueo-gothica*[153] (comprehensive, classic); Setterwall, *Svensk historisk bibliografi*, 1875–1900[148], etc.

For Spain, Ballester y Castell's *Bibliografía de la historia de España*[112] is a recent manual on the lines of the old Dahlmann-Waitz, Monod, and Pirenne (cf. also Sanchez Alonso's more extensive but less comprehensive *Fuentes de la historia española*[147]). For Portugal, cf. Figanière[126], though now old.

Swiss history has been the subject of a number of great bibliographies; cf. especially Barth's *Bibliographie* of books[113] (containing over 33,000 titles—bibliographies and general works in vol. 2) and the *Repertorium* of articles in periodicals and collections by Brandstetter[115] (for publications of 1812–90) and by Barth (for 1891–1900). Since 1913 an annual supplement to Barth's *Bibliographie* has been published (in *Anzeiger für schweizerische Geschichte*, 1915–20; in *Zeitschrift für schweizerische Geschichte*[174], 1921–).

Our notes on the bibliography of Austria and the countries of Eastern Europe must be the most tentative section of our list, in view of the rapidly changing conditions. Charmatz's brief *Wegweiser* [122] (1912) dealt with the united Austro-Hungarian empire, but now reference must be made to separate bibliographies of every subject for each of the former divisions of the empire: Zíbrt's comprehensive *Bibliografie české Historie* [156], Handelsman's introductory article, *Études d'histoire en Pologne* [132], Finkel's comprehensive *Bibliografia historyi polskiej* [127] to the year 1815 (continuation, for 1815–65, in preparation by the Warsaw Society of Sciences and Letters—cf. Handelsman), the extensive bibliography in Teleki's *Evolution of Hungary* [151], etc. Kerner's *Slavic Europe* [1356] is in general the best starting-point for the American student in the bibliography of Russia and the Slavs in general, since it deals with the pre-war status, when Russian history included the Finns, Lithuanians, etc. The works listed are chiefly in the languages of western Europe, but the chief bibliographies are included regardless of language. Kornilov's *History of Modern Russia* [136] (English translation by Kaun) contains a valuable bibliography by G. T. Robinson.

All these are retrospective bibliographies, covering the subject more or less thoroughly up to the date of their publication, but themselves already out of date or becoming so. The greatest among periodical bibliographies of history was the *Jahresberichte der Geschichtswissenschaft* [169], published 1880–1916, and including publications of the years 1879–1913 in all divisions of history. It also included church history and the auxiliary sciences. (For the long list of periodicals analyzed, cf. Jastrow's *Handbuch der Literaturberichten.*) The suspension of the *Jahresberichte* in 1916 created a great gap in historical bibliography, and the prospect of its resumption is most welcome. Meanwhile it has been replaced, for German history, by the *Jahresberichte der deutschen Geschichte* [168] (1920– , covering the publications of 1918–). The Berlin Historische Gesellschaft has continued its *Mitteilungen aus der historischen Literatur* [164], which has the somewhat different scope of giving to scholars not in a position to keep track of general developments, "ein möglichst vollständiges Bild von der Fortentwicklung" of historical studies, by means of numerous abstracts and reviews, chiefly, however, of books in German. The (London)

Historical Association's *Annual Bulletin of Historical Literature*[162] (1911–) and occasional *Leaflets*[163] (on various subjects) are of still more popular type. A new "Annuaire international de bibliographie historique, nettement distinct des annuaires nationaux" is projected by the International Committee (cf. its *Bulletin*[167], no. 2).

But even if the annual bibliographies were approximately internationally complete and up to date at time of publication, the titles listed would be from one to twelve months old—in fact, the German *Jahresberichte* are often two or three years in arrears. The historian must, therefore, regularly follow the best bibliographical and review journals of national and even local history, issued in the various countries at more frequent intervals; such as the *American Historical Review*[157], which is selected for special mention here, not that one may dispense with foreign periodicals like the *English Historical Review*[160], the *Revue historique*[171], *Revue de synthèse historique*[170], *Historische Vierteljahrschrift*[165], etc. (cf. Internat. Comm. of Hist. Sciences *Bull.*[167] no. 2), but as an example of them all, and probably the best example, to judge from the international scope of its book reviews. Each is more specifically, if not exclusively, concerned with works on its own national history and with works written by its own native scholars.

The *Bibliothèque de l'École des chartes*[158] contains the best current bibliography on mediæval history, the auxiliary sciences, and mediæval studies in general, each number containing a good section of "bibliographie." For the work of American scholars in the whole range of mediæval studies, Willard's annual *Progress of Mediæval Studies in the U. S.*[173] is a very useful bulletin, not only of published books but of "forthcoming books," of "doctoral dissertations now in progress or completed," and of "mediævalists with their publications during the period." These lists are becoming larger and more nearly complete as more American mediævalists are associating themselves with the organization of mediæval studies in the Mediæval Academy of America.

The study of history—its "methods and means"—is the scope of the valuable *Bulletin of the Institute of Historical Re-*

search [166] (note esp. its reviews, lists of theses, reports on "Migrations of Historical MSS.," on archives and other source material).

GEOGRAPHY

In the group of historical sciences, geography is a distinct division, which includes also matter of interest for scientists, e. g., physical geography. We have an excellent annotated bibliographical manual in Wright's *Aids to Geographical Research* [189], "intended, so far as possible, to furnish a clue to various bibliographical aids, through which the geographer may quickly and systematically gain access to printed materials." The first part deals with general bibliographies and bibliographies of sciences related to geography (history, natural sciences, etc.), selected and annotated from the point of view of the geographer. Then follow lists of geographical bibliographies, a bibliography of maps, a section of suggestions for finding geographical publications, a list of geographical periodicals, and, finally, a list of regional bibliographies. Subsequent editions may be improved by more independent and less quoted judgments, and by useful additions of earlier bibliographies of geographical bibliographies (e. g., Jackson [180]), of discovery and travel (the Church *Catalogue* [123], Wagner's *Plains and the Rockies* [188], etc.), of the history of geography and cartography (see below), etc.

Regel's *Geographieunterricht* [183] is also a useful manual, containing select lists which do not duplicate Wright. Mill's *Guide* [182] is a useful selected list, "primarily for teachers who can read only English." The most comprehensive bibliographies are the catalogues of special libraries—that of the Gesellschaft der Erdkunde zu Berlin [179] "is indisputably the most useful" (Wright).

"Current bibliographies are of two types. The first includes the five great repertoires," which "should be the corner stones of all geographical research." "The second consists of book reviews and other bibliographical notes to be found in the periodicals" (Wright). The repertoires "of primary value" are the *Geographisches Jahrbuch* [195], which surveys the progress and bibliography of different topics during periods of years, and the *Bibliographie géographique*[191], an annual classified list with brief annotations. The periodicals most useful to the American student for reviews and current bibliographical lists are the *Geographical Review*[193], the *Geographical Journal*[192], *La géographie*[194], and *Petermanns Mitteilungen*[196]. (Cf. also the *International Catalogue of Scientific Literature*[786].)

Among special divisions of geography, maps and atlases deserve attention. Wright's references should be supplemented by references to the Library of Congress's *List of Geographical Atlases*[187] compiled by Phillips; to the same author's exhaustive bibliography of cartography on cards filed at the Library of Congress; to Martin's *Selection of Material on the New Geography*[358]; Joerg's review of *Post War Atlases*[181]; the recent *Catalogue* of the French Service Hydrographique[178]; *Printed Maps in the Atlases of Great Britain and Ireland* by Chubb[175]; etc.

Fordham's *Maps, Their History, Characteristics, and Uses*[176] and Wright's *Geographical Lore of the Time of the Crusades*[190] are interesting works in historical geography.

Examples of local geographical bibliographies are: Richter's *Bibliotheca geographica Germaniæ*[185], Fordham's *Road Books and Itineraries of Great Britain*[177], Sullivan's *Catalogue of Geological Maps of South America*[186]; Richard's *Comprehensive Geography of the Chinese Empire*[184], etc. A bibliography of American travel was projected by the American Historical Association (cf. *Amer. Hist. Rev.*, v. 19 (1913–14), p. 488), and a bibliography of the geography of North America is contemplated by the American Geographical Society.

ANTHROPOLOGY, ETHNOLOGY, PREHISTORIC ARCHÆOLOGY, FOLK-LORE

"The vastness of the anthropological sciences and the nebulous character of their demarcation from other sciences render their definition or classification a peculiarly difficult matter. . . . Anthropology is slowly becoming a coherent and organized science" (Haddon[206]). Thus the bibliography of the various anthropological studies is scattered through that of other subjects (e. g., in *International Catalogue of Scientific Litera-*

ture[786]). Physical anthropology is included in the biological sciences; ethnology is of interest as well to the geographer, the historian, the sociologist, and the psychologist; prehistoric archæology has its own specialists and also specialists from the groups of historians, archæologists, and geologists; folk-lore has also its devotees among the students of literary history and of comparative religion; and so on.

The most general bibliographical work to be cited at the present time is Dieserud's *Scope and Content of the Science of Anthropology*[200], which includes a select and very well-annotated bibliography of about 100 pages, in chronological arrangement, based on material in Washington libraries, but limited to material on the scope, definition, and classification of anthropology. Haddon's *History of Anthropology*[206] is also of general interest and calls attention to the outstanding works in the whole field up to the time of its publication (1910). Ripley's *Selected Bibliography of the Anthropology and Ethnology* [and prehistoric archæology] *of Europe*[213] of "nearly two thousand titles" (1899) is still the most extensive bibliography in these divisions of the field, within the geographical boundaries of Europe, western and Russian Asia, and northern Africa.

Hrdlička's *Physical Anthropology; Its Scope and Aims, Its History and Present Status in the U. S.*[207] is limited not only to a division of the field but also, locally, to the contributions made in the United States and Canada. Probably the most extensive bibliography of physical anthropology in general is that included in Martin's *Lehrbuch der Anthropologie*[209]. There is a recent selected "list of sources for actual data" in Dixon's *Racial History of Man*[201].

In ethnology, Steinmetz's *Essai d'une bibliographie systématique*[214] is a comprehensive bibliography, or at least a very extensive select bibliography on ethnology to the year 1911; under the general divisions (each with from 12 to 40 subdivisions) history of ethnology, evolution and laws, distribution, psychology, economic life, material civilization, societies, state and law, marriage, habits and customs, morals, religion, science and art, etc.

As examples of bibliographies of the anthropological studies of special races we may add Black's *Gypsy Bibliography* [197], Du Bois's *Select Bibliography of the Negro American* [202], and that in Hodge's *Handbook of American Indians* [224].

In the prehistoric field, first reference should be made to Ebert's *Reallexikon der Vorgeschichte* [203], now in progress of publication. A good select list of books is included in Osborn's *Men of the Old Stone Age* [211]. Montandon, in 1917, began an exhaustive *Bibliographie générale des travaux palethnologiques et archéologiques* [210] toward which he had collected over 35,000 titles; but only the first two volumes, including some 17,000 titles to the year 1914 and concerned with certain local divisions of France, have been published.

As examples of bibliographies limited to special countries, we should mention Déchelette's *Manuel d'archéologie préhistorique celtique et gallo-romaine* [199] (v. 2—"Appendices" and "Appendices; supplément"—contains elaborate lists of sites of special finds, accompanied by bibliographical references throughout) and Puig y Larraz's *Ensayo bibliográfico de antropologia y prehistoria ibérica* [212]. Gattefossé's *Bibliographie* [205] of the problematical Atlantis has a literary as well as anthropological interest.

The literature of folk-lore is probably the most numerous and exclusive in this whole group of studies. Kaindl's *Volkskunde* [208] includes a brief introduction to the "Entwicklung und Literatur" of the study in various countries. There is a short list of "authorities cited" in Burne's *Handbook of Folk-Lore* [198]. The "list of authorities cited" in the third edition of Fraser's encyclopædic, though discursive, *Golden Bough* [204] occupies 144 pages of the twelfth volume, and constitutes the most extensive bibliography of folk-lore that we have; but the student needs a systematic arrangement or a subject index to the bibliography; for, in order to arrive at Frazer's bibliography on a given topic, one must consult the subject index and hunt out the corresponding passage in the text and foot-notes.

As regards current publications, the anthropologist is much better off than in retrospective bibliographies. While many of his best periodical sources are still the general scientific, biological, geographical, historical, and literary periodicals, there are periodicals which treat of the anthropological sciences as an organized whole, and there are also those devoted to special divisions of the field. The most general and inclusive is *Man* [221], which contains: (1) Original articles and notes on current researches and controversies; (2) descriptive and critical notices of the acquisitions of museums and of private collections; (3) reviews and critical summaries of recent publications; (4) reports of the meetings of learned societies; (5) bibliographies as complete as can be made, with brief critical summaries of various departments of study in turn, including foreign publications and periodical literature (v. 1, pref.). A current *Verzeichniss der anthropologischen Literatur* was included from 1866 to 1904 in the *Archiv für Anthropologie* [218], organ of the Deutsche Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte, who also publish a current list of books newly received, in their *Zeitschrift für Ethnologie* [227]. Other journals containing fairly numerous reviews are the *American Anthropologist* [215], *Anthropos* [217], etc.

In physical anthropology, first attention should be given to the *Anthropologischer Anzeiger* [216], which is largely devoted to current bibliographical lists and critical reviews. In the prehistoric field, the *Urgeschichtlicher Anzeiger, Internationale kritische Zeitschrift* [226] is almost entirely devoted to critical reviews and lists. Reviews are also included in the *Præhistorische Zeitschrift* [223], in *Mannus* [222], etc.

Several attempts have been made to establish current bibliographies of folk-lore studies, the latest of which is Hoffmann-Krayer's *Volkskundliche Bibliographie* [220] (covering the years 1917-). A few reviews are included in *Folk-Lore* [219].

SPORTS AND GAMES

Library classification schedules place sports variously among, or adjacent to, the fine arts, or in the group of historical-geographical-anthropological studies. They are also of interest to the educationalist, the sociologist, and, perhaps above all and *per se*, to the general student in school or college. All these groups of students should find the *Suffolk Encyclopædia of Sports* [236] a valuable book for both reference and reading, though very uneven in its treatment of non-British sports and in the character and extent of its bibliographical references. As an example of attempts at a comprehensive bibliography we have listed that by van Stockum [235]. The college student will be interested in Drury's *College Life and College Sport, a Reading List* [229]; educationalists and sociologists in bibliographies of physical training, such as McCurdy [232] and the current list in the *American Physical Education Review* [228], the Russell Sage Foundation *Sources of Information on Play and Recreation* [234], etc.

The literature written about individual sports and games is much more extensive than might be supposed, and nearly every sport has its own published bibliography. Examples are: the New York Public Library's *Spalding Baseball Collection* [233], Westwood's classic and curious *Bibliotheca piscatoria* [238], Thimm's *Bibliography of Fencing and Duelling* [237], Jessel's *Bibliography of Works in English on Playing Cards and Gaming* [230], van der Linde's *Erste Jahrtausend der Schachliteratur* [231], etc. It would be an amusing and not unprofitable task to gather all these in a bibliography of bibliographies of sports and games.

AUXILIARY SCIENCES

The so-called auxiliary sciences—chronology, epigraphy, palæography, diplomatics, numismatics, heraldry, genealogy, and biography—are generally associated with the historical sciences, particularly with mediæval history. Their bibliography will therefore be found in the great reference books and bibliographies of general and mediæval history (e. g., Paetow's *Guide* [108], the *Guide to the Study of History* [99], Meister's *Grundriss* [131], the *Bibliothèque de l'École des chartes* [158]). Also some of the most systematic bibliographies will be found in the encyclopædic works of philology and literature, like the Müller *Handbuch* [602], the Pauly-Wissowa *Realencyclopädie* [608], "Bursian's" *Jahresbericht* [623], the *Orientalische Bibliographie* [593], Paul's *Grundris der germanischen Philologie* [667], etc.

"Pour écrire l'histoire, il faut interroger les documents. Les documents sont les traces matérielles qu'ont laissées les actes et les pensées des hommes d'autrefois" (Langlois). These docu-

ments, public and private, charters, deeds, letters, accounts, etc., constitute archives all over the world, from the largest, safest deposit vault to the meanest trunk in the meanest attic. Historical problems are solved, and solved again and again, in the light of newly discovered documents in forgotten or unlikely archives. In its widest sense, archives would include both the miscellaneous collections of chiefly manuscript material, to which we are limiting ourselves in this chapter, and the organized series of printed official "documents" or publications (cf. chap. 9).

The best introduction to the bibliography of archives in general is still to be found in Langlois's *Manuel* [104]. Giry's *Manuel de diplomatique* [254] includes copious references to published collections of mediæval documents, and Oesterley's ambitious *Wegweiser durch die Urkundensammlungen* [270] (1885) has not yet been entirely replaced by special works on archives of different countries and on different categories of documents (cf. app. and chap. 15). The historical student will do well to familiarize himself early with the organization and contents of the archives of the country or locality in which he is interested, e. g., Hall's *Repertory of British Archives* [256], (cf. also his *Select Bibliography for . . . English Mediæval Economic History* [100]), and with the printed collections, bibliographies, and catalogues of manuscripts.* The *Archivalische Zeitschrift* [278] deals with the organization and history of archive collections and also with their general contents and, since their use involves the studies palæography, diplomatics, etc., it includes reviews of books in these fields. (Cf. also the *Bulletin* of the Institute of Historical Research [166] and other periodicals of history and library science and bibliography.)

Diplomatics is, properly speaking, the science of mediæval documents ("diplomata"). At the time of its origin as a special study in the seventeenth century, in Mabillon's classic *De re diplomatica*, its chief concern was with the authenticity of grants held by religious institutions. It involved, therefore, criticism both of content (facts and formulæ) and of writing. Later, palæography was developed as a more or less distinct field, dealing with the writing of both documents and literary manuscripts, and including ancient as well as mediæval writing (cf. chap. 12). More recently still, within the last forty years, the discovery in Egypt of thousands of ancient documents and literary manuscripts on papyrus has brought into existence a third specialized study of manuscripts, known as papyrology. Finally, a special literature has grown up on a subdivision of diplomatics, known as sigillography or sphragistics.

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* We have in progress, at the present time, under the auspices of the Conference of Eastern College Librarians, a union catalogue of manuscript catalogues in American libraries.

The bibliographer's best starting-point, in any of these four subjects, is a recent manual of the subject—Giry [254] for diplomatics, Thompson [1505] or Lehmann [1476] for palæography, and Schubart [1498] for papyrology. Rosenmund's *Fortschritte der Diplomatik seit Mabillon* [275] is a good introduction to the great works in diplomatics down to 1879; and Traube's *Vorlesungen und Abhandlungen* [1506] includes a really delightful "Geschichte der Paläographie." For English palæography and diplomatics, cf. Hall [100]. The older comprehensive bibliographies by Huch [260] (1798) and Namur [1412] (1838) are of only occasional use. For sigillography we have an excellent bibliography begun by Mariette in the 1924–25 volume of *Bibliographe moderne* [263]. There is need for a full, up-to-date bibliography of the rest of the field of diplomatics.

In palæography the need is less urgent, thanks to such catalogues of palæographical collections as that published by the London University Library [262], select lists (e. g., Nelis [1447]), and the summaries published at intervals of five or ten years in Bursian's *Jahresbericht* [623]. E. A. Lowe has in preparation an urgently needed index to palæographical facsimiles. For current lists, in addition to historical and philological periodicals, cf. the *Zentralblatt für Bibliothekswesen* [1455], etc.

In papyrology, in addition to the historical and classical periodicals mentioned above, the student should keep in close touch with the bibliographies, summaries, and reviews included in *Ægyptus* [586], the *Journal of Egyptian Archæology* [591], etc.*

Chronology is so much a part of history that it usually forms a section in each local or chronological division of history. Most of the methods of reckoning time are essentially astronomical, and the historian will often find his best starting for the solution of some problem of the calendar by referring, e. g., to Ginzel's *Handbuch der mathematischen und technischen Chronologie* [253], which includes copious bibliographical references in each division of the work (cf. especially his list of "Spezielle astronomischen Hilfsmittel"). As an example of more special works we include Nillson's *Primitive Time-Reckoning* [268]. (Its ten-page "List of authorities quoted" is an interesting illustration of the variety of sources of chronological data.)

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* We hope some time to publish a complete bibliography of Greek papyri.

The best introduction to numismatics bibliography is in Hill's *Coins and Medals* [259]. "In each branch of the subject some of the standard authorities are mentioned, together with some of the newer publications which supplement them in details," though but one or two of the many bibliographies are included. The most extensive recent bibliography is the *List of Works in the New York Public Library Relating to Numismatics* [267]. This includes a list of other bibliographies, though omissions—of older comprehensive lists by Lipsius [261] and Friedlaender [251], and of more modern bibliographies concerned with special countries, such as Cumont [246] for Belgium, Rada y Delgado [274] for Spain, Medina [264] for Latin America—well illustrate the difference between a library catalogue and an exhaustive bibliography. As a recent example of a more special topical bibliography, we have listed Noe's extensive *Bibliography of Greek Coin Hoards* [269]. There are numismatic journals in every language (cf. list of "leading periodicals" in Hill); the *Revue numismatique* [280], the *Zeitschrift für Numismatik* [282], etc., are valuable for reviews and notices. Trade catalogues are an especially likely bibliographical source in numismatics; since both coins and the literature that goes with them are fields for the collector.

There are few bibliographies of epigraphy outside the standard reference books on the subject (cf. chap. 12), and the bibliographies of ancient history and classical and oriental studies. Lidzbarski's *Handbuch der nordsemitischen Epigraphik* [1477] includes 80 pages of bibliography; Chabert has given a useful introductory *Histoire sommaire des études d'épigraphie grecque* [241], and Perret's elementary *Inscriptions romaines; bibliographie pratique* [273] should enable the beginner in Latin inscriptions to avoid some confusion and loss of time (cf. also Cagnat [1428]). Current lists and reviews are to be found in historical and philological journals—e. g., Cagnat's *Année épigraphique* in the *Revue archéologique* [524].

Although "marks" and devices have been used from the earliest times and indeed may have come into existence earlier than writing (cf. chap. 12), the study of armorial devices, i. e. heraldry as it is commonly understood, was a mediæval institution connected with the knightly tournaments. As coats of arms were hereditary, the subject is closely associated with genealogy, but is also included in the investigations of students of history, art, diplomatics and sigillography, etc. Heraldic book plates and printers' marks also fall within the field of library science. Reference should also be made, however, to certain special works on heraldry like the catalogue of the library Herold, Verein für Wappen- Siegel- und Familienkunde [257], and their periodical *Vierteljahrschrift* [281]; Gatfield's *Guide to Printed Books Relating to English and Foreign Heraldry and Genealogy* [252]; and to examples of bibliographies limited to the heraldry of special countries, like Moule [266] for Great Britain, Colaneri [242] for Italy, etc.

With the increasing study of heredity, family trees have extended their importance from the field of local history to the fields of biology and sociology as well, and service could be rendered by a genealogical bibliography compiled with reference to the data for the study of heredity. The most ambitious bibliography is Gundlach's *Bibliotheca familiarum nobilium* [255], including published genealogies of families of all nations, but, inevitably, showing many lacunæ. Heydenreich's *Handbuch der praktischen Genealogie* [258] contains extensive references but is very incomplete in other than German titles. American students will find a most valuable list in the catalogue of *American and English Genealogies in the Library of Congress* [276], which runs to nearly 7,000 titles, without attempting to include periodical articles more than occasionally. The histories of a single family may be so numerous that it takes a big volume to give its bibliography—for example, the bibliography of the Medici family made a book of 400 pages as long ago as 1826 [265], and Bulloch's *Bibliography of the Gordons* [240] devotes the first volume of 213 pages to material concerned with only the Gordons whose Christian names begin with *A*.

In family histories and their bibliographies, genealogy and biography are of course combined. The most extensive bibliography of biography is Oettinger's *Bibliographie biographique universelle* [271] (1854); the author does not pretend to completeness, but has "la pleine conviction que jusqu'à ce jour il n'existe pas une seule bibliographie spéciale plus complète que j'offre aujourd'hui au public." Dunn's *English Biography* [249] has the statement "the whole question of a bibliography of biography remains. The lists herewith given in the appendix . . . are intended to be only suggestive." Dimpfel's *Biographische Nachschlagewerke, Adelslexika, Wappenbücher* [247] is a useful list of German works of collective biography which might well find its counterparts in other countries. Cole's *Check List of Biographical Dictionaries and General Catalogues of American Colleges* [243] is an example of a special type. But it may be questioned whether there is a field for bibliographies of individual biographies other than those included in historical bibliographies,* those in the great dictionaries of biography and biobibliography (cf. chap. 11), and the select lists compiled for the general reader (e. g., Cross's *Outline of Biography* [245], the Ottawa Public Library's *Selected List of the Best Biographies in English* [272]).† To these categories we should add the bibliographies of special types of biographical material, like Forbes's *New England Diaries* [250], the *A. L. A. Portrait Index* [239], etc.

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* E. g., a whole volume of the *Sources de l'histoire de France, XVIIe siècle* [150] is devoted to biographies.

† "Biography next to fiction is the kind of reading most people now like best. . . . We all have the impulse to vary and lengthen our own lives by living several other lives vicariously at the same time. Biography is thus a sort of Life Extension Bureau" (Cross).

SOCIAL SCIENCES

The social science group of studies (economics, sociology, politics, and law) may fairly claim to be the most universal of the sciences. The economic, social, and political interests of mankind include not only all that is implied in the word history but also the history that is still in the making—theories, policies, and events that will make history in the future. Furthermore, its students and readers are by no means specialists in so large a proportion as in other subjects, nor, what is worse, are its authors and publicists all specialists. Everybody has his theories and opinions on economic, social, and political questions—and airs them. And everybody advertises. The material lies partly in the materials of history but also, perhaps more largely, in all sorts of current, ephemeral literature—from official documents and expert statistics of all sorts down to the most popular periodical articles, the daily news, commercial propaganda, and "house organs."

In the seventeenth century you may find such all-embracing bibliographies as Bartels's *Biblionomia historico-politico-geographica*. By the eighteenth century, "political economy," or "Staatswissenschaften," became distinct from history and you have comprehensive bibliographies such as Moser's *Gesammelte und zu gemeinnützigen Gebrauch eingerichtete Bibliothec von oeconomischen-, cameral-, policy-, handlungs-, manufactur- mechanischen- und Bergwercks- Gesetzen, Schrifften und Abhandlungen* [307] (1758). In the nineteenth century the scope becomes reduced to selective lists such as those by McCulloch [303] (1845), and von Mohl (in his *Geschichte und Literatur der Staatswissenschaften* [306], 1855–58), which are still useful for their critical annotations. Later lists are further limited selections for special use, like Bowker and Iles's *Reader's Guide in Economical, Social, and Political Science* [288], Fetter's *Manual of References and Exercises in Economics* [296] (for "the student of an elementary text"), the Harvard University *Guide to Reading in Social Ethics and Allied Subjects* [301], etc.; or selections made from a special point of view, like the Fabian society's list [295], Thompson's *Guide to Readings in Civic Educa-*

tion [323], etc. Select lists of these kinds will always have their vogue and usefulness. The advanced student in the twentieth century will, however, usually take as his starting-point the references in the great encyclopædic works—Say and Chailley's *Nouveau dictionnaire d'économie politique* [316]; *Handwörterbuch der Staatswissenschaften* [299], often referred to under the name of its former editor, Conrad; the *Grundriss der Sozialökonomik* [298]; Palgrave's *Dictionary of Political Economy* [312], etc. All these contain numerous bibliographical references, though inadequate to American interests, and often in very abbreviated form. There is in preparation an encyclopædia of the social sciences under American auspices and authorship [294]. References on the history and classic theories of the social sciences may be found, e. g., in Haney [300] or in *History and Prospects of the Social Sciences*, edited by Barnes [286] (the authors of the different sections show varying degrees of scholarly judgment and biassed radicalism; and the bibliographies vary in extent, fulness and accuracy). Cf. also Seligman's *Curiosities of Early Economic Literature* [317].

A universal bibliography of the social sciences would be so nearly a universal bibliography of books, articles, pamphlets, folders, documents, and everything in general, that it will hardly be attempted, though the London School of Economics has considered the desirability of publishing a catalogue of its library of some 250,000 books; and Stammhammer's various compilations [320-22] must include, on a rough estimate, well over 100,000 titles.

Nowadays the most general lists are book-trade catalogues (Prager, and Preiss, in Berlin; Rostand, and Giard and Brière, in Paris; Harding in London, etc.). Mühlbrecht's *Wegweiser durch die neuere Litteratur der Rechts- und Staatswissenschaften* [308] is the product of a book-dealer's "langjährigen praxis" combined with the study of all bibliographical books and periodicals in the field (selected from his bimonthly *Übersicht der gesammten Staats- und Rechtswissenschaftlichen Litteratur*, 1869-). But the information about each title is so scant that the list can be of little use except to the mature scholar, who may find in it suggestions supplementing his other less comprehensive bibliographical sources. Grandin's *Bibliographie générale des sciences juridiques politiques économiques et sociales* [297] (based on the bibliographical resources of the firm "Recueil Sirey") is an exhaustive list of French publications since 1800 (though the legal section far outnumbers the others) and gives adequate details of title, imprint, and collation.

The most satisfactory contemporary social-science bibliographies, whether comprehensive or selective, are those which are limited to the publications in a given country, like the Seville University *Ensayo de bio-bibliografía de hacendistas y economistas españoles* [318]; or to publications about a given period or locality, like Bulkley's *Bibliographical Survey of Contemporary Sources for the Economic and Social History of the War* [289], Maunier's *Bibliographie économique, juridique et sociale de l'Égypte moderne* [304], the *Civic Bibliography for Greater New York*, ed. by Reynolds [313], the "selected references" in Ogg's *Economic Development of Modern Europe* [311], Hasse [1098] for the economic history of the United States, Williams [328] for England in 1750–1850 (a selective but monumental annotated bibliography), etc.; or, again (and these are the most useful) to some special, relatively small division of the field, like the Royal Statistical Society's *Catalogue* [315], Webb's *History of Trade Unionism* [326] (with bibliography), Woodbury's *Bibliography of the Cotton Manufacture* [330], the Bureau of Railway Economics Union catalogue of books in fourteen American libraries [290], Lord Crawford's *Bibliotheca Lindesiana . . . a Bibliography of . . . Philately* [291], the Newark Public Library's 2,400 *Business Books and a Guide to Business Literature* [310], the *Source-Book of Research Data*, prepared by the New York University Bureau of Business Research [309], Allen's *Guide to the Study of Occupations* [283], the Dixie Business Bookshop's *Bibliography of Books on Business Economics* [293], the *Accountants' Index* [284], Stammhammer's *Bibliographie der Finanzwissenschaft* [320], Dewey's *Financial History of the United States* [292] (with bibliography), the U. S. Tariff Commission, *Colonial Tariff Policies* [324] (with bibliography), Bouglé and Déat's elementary *Guide de l'étudiant en sociologie* [287], Zimand's *Modern Social Movements* [331], Robertson's *Guide to the Literature of*

Home and Family Life [314], Wolfstieg's *Bibliographie der freimaurerischen Literatur* [329] (suppl. by Beyer), Amor y Neveiro's *Bibliografía de los estudios penales* [285], the *Welt des Socialismus* [327], the National Library of Wales, *Bibliography of Robert Owen* [325], etc. Cf. also the "Lists of references" compiled by the Library of Congress on practically every social, economic, and political topic of current interest in the present generation.

This enumeration of topical bibliographies could be extended indefinitely. We have already exceeded the amount of space which should be allotted to them here, partly in order to indicate their extent and variety and partly because the social sciences still lack a satisfactory manual or bibliography of bibliographies. Two excellent preliminary attempts have been made, however: Sombart's article [319] (1904) and Maunier's *Manuel* [305] (1920). Sombart gives only "Anzeige einiger Neuerscheinungen bibliographischen Inhalts . . . um einen Überblick zu geben über das, was die Sozialwissenschaften überhaupt an bibliographisch-literarischen Hilfsmitteln besitzen," but the greater part of his 184 titles are still useful, particularly within the scope indicated in his critical annotations. Maunier includes 2,020 titles and still speaks of his compilation as merely an "essai provisoire." Even so, the student will find it surprisingly out of date both in arrangement and content; and will feel that, while the compiler has made a gallant effort, he should be urged to continue the work in one much larger, more up-to-date, and annotated.

Even more than the tendency toward specialization, the outstanding characteristic of present-day work in the social sciences is the insistence on the most recent information—court decisions, government reports (cf. chap. 9), the periodical and newspaper articles (cf. chap. 9), and even mimeographed, typewritten, and other unpublished material. Warnotte's article [351] (1910) is still a useful introduction to the periodical literature in the field, making due allowance for the many war-time changes of societies and periodicals. An important list of *European Economic and Financial Publications* (periodicals) has been recently issued by the *Reference Service on International Affairs* [334]. However, the list for each country was "furnished by the American consul-general or consul in the Capital," and consists chiefly of commercial and official publications, to the exclusion of such professional review and bibliographical journals as the French *Journal des économistes* [344] (for book notices) and the *Revue d'économie politique* [347] (for French periodical articles), the Italian *Riforma sociale* [348], English *Economica* [339], *Economic Journal* [338], and *Economic History Review* [337], and the German *Bibliographie der Sozialwissenschaften* [336] (very extensive annual lists, with a monthly supplement).

The last-named is the most complete of current bibliographies, but the American student will place it on his reading-list only after the *American Economic Review* [332] and the Public Affairs Information Service *Bulletin* [346]. The former is superior to the *Bibliographie der Sozialwissenschaften* in that it supplies, especially for American literature, a very complete series of reviews and abstracts, and has an annual list of American doctoral dissertations. For the great mass of material contained in periodicals of all sorts, for government publications, for mimeographed reports, bibliographies, etc., and for news digests, the "P. A. I. S." has been described by an enthusiastic student of the social sciences, in our hearing, as "the greatest bibliography in the world." The 1921 issue, for example, indexed some 550 periodicals and included references to occasional articles in some 250 others. The cumulative method of publication is perhaps its most valuable feature as a bibliography of current work: the first form of its issue is a weekly; then a bimonthly issue cumulates the preceding weekly bulletins; and an annual issue, published in October, cumulates the material of the preceding year. The service also includes an agency for the copying of unpublished information, the compilation of bibliographies on specific topics, etc. The *Bulletin* is limited, for the most part, to works in English and does not give abstracts. An international quarterly or bimonthly abstract journal has been planned by the League of Nations Committee on Intellectual Co-operation [345].

For the specialist in one or another of the social sciences, there are also more specialized periodicals, including current bibliographical information, e. g., the *Guide to Current Official*

Statistics[1119], the Royal Statistical Society *Journal*[349], the *International Labour Review*[342], the *Monthly Labor Review* of the U. S. Department of Labor[350] (occasionally exhaustive bibliographies on individual current topics), the *Industrial Arts Index*[981] (initiated by the same house and in the same style as the P. A. I. S. *Bulletin*), the International Railway Congress Association *Bulletin*[343], *Finanz-Archiv*[340], *Bulletin* of the Insurance Library Association of Boston[341], *American Journal of Sociology*[333], etc.

POLITICAL SCIENCE

Although political science is a distinct division of the social sciences, it has not as yet an independent bibliographical apparatus. The lack has been discussed in the American Political Science Association and we may hope eventually for a comprehensive bibliography of the subject. Text-books include more or less valuable select lists, e. g., Gettell's *Introduction to Political Science*[367], which includes a list of "general references" forming "a working library in political science," in addition to the specific references at heads of chapters. A detailed history of political theory is contained in Dunning's *History of Political Theories*[363]. A biobibliography, additionally interesting in book history, is Gerber's *Niccolò Macchiavelli*[366]. Dareste de la Chavanne's collection *Constitutions modernes*[360] includes a general list of other collections and a special list, chiefly of texts, for each country; this may be supplemented for special treatises and for English works in general by the lists included in Dodd's *Modern Constitutions*[361].

Similarly, for special topics of constitutional and administrative law we may cite "bibliographical notes" in such works as Seymour and Frary's *How the World Votes*[390]; and there are occasional separate bibliographies like Schroeder's *Free Speech Bibliography*[389]. On the constitutional law of special countries, we may mention, by way of example, for America, Hart's *Actual Government as Applied under American Conditions*[372] (includes a substantial bibliography of "only the most serviceable books"), the *Cyclopedia of American Government*, edited by McLaughlin and Hart[359], the Massachusetts

State Library's *Handlist of . . . Constitutional Conventions* 378, Kennedy's *Constitution of Canada* 377, etc. On European governments, Ogg's *Governments of Europe* 385 includes useful brief bibliographies, and there are reference works and text-books with bibliographical references for each country, e. g., Block's *Dictionnaire de l'administration française* 352, Krüger's *Government and Politics of the German Empire* 368, with "critical bibliography," etc.

The best encyclopædic work on local government is the *Handwörterbuch der Kommunalwissenschaften* 371 (with bibliographies). The most extensive bibliography of municipal problems is that by Brooks 354. The annotated list of "sources and literature" in Munro's *Government of European Cities* 382 is an excellent introduction to the literature; and the same author has published a *Bibliography of Municipal Government in the United States* 381. Bibliographies of special municipal problems may be illustrated by reference to Kimball's *Manual of Information on City Planning and Zoning* 492 and Stevens's *Bibliography of Municipal Utility Regulation* 391.

An extensive and still useful list of older literature on colonization is that by Griffin 392 (1900). More recent, select bibliographies have been issued by the Royal Colonial Institute Library 387. Germany's loss of her colonies has not prevented Schnee's *Deutsches Koloniallexikon* 388 (with bibliographies) from being one of the most important reference works on colonization and Africa. Immigration and race problems in the United States have received bibliographical attention in Bogardus's *Essentials of Americanization* 353, and in Greene and Gould's *Handbook-Bibliography of Foreign Language Groups* 369, etc.

The division of political science which is of most recent and rapid independent growth is the subject International Law and Relations. The literature is growing so that there is a field for an up-to-date bibliographical manual, and it should be a comparatively small task to re-edit this section of Borchard's excellent critical discussion of the *Bibliography of International Law and Continental Law*, published by the Library of Congress Law Library 394 (1913). Among more recent works, of bibliographical character or including bibliographies, which should be included in a new edition of Borchard, we may mention Fauchille's *Traité de droit international public* [364], Buell's *International Relations* [355], Moon's *Syllabus on International Relations* [380], and Hicks's *New World Order* [374]. Myers's *Manual of Collections of Treaties* [383] includes, so far as possible, all works containing collections of texts and diplomatic correspondence concerning them and most of the general bibliographies of politics and international law (though omissions have been noted—e. g., even Borchard's work).

Fairly up-to-date and comprehensive, at their dates of publication, are the catalogues of libraries of international law, especially those of the Hague Palace of Peace [370] and the Institut Nobel norvégien [375], and the union catalogue of *Internationales und ausländisches Recht* in thirty Berlin libraries, published by the Internationale Vereinigung für Vergleichende Rechtswissenschaft und Volkswirtschaftslehre [376].

Special bibliographies of general interest are Doré's *Essai d'une bibliographie des congrès internationaux* [362], the list of *Publications of the Carnegie Endowment for International Peace* [357], *Publications Issued by the League of Nations* [1090], etc.

Ter Meulen's *Concise Bibliography of Hugo Grotius* [379] may be noted as an example of personal bibliography. With reference to special countries, important recent bibliographical works are: Fish's excellent brief *Introduction to the History of American Diplomacy* [365], Hasse's *Index to U. S. Documents Relating to Foreign Affairs, 1828-1861*[373], Robertson's *Hispanic American Relations* [386] (with bibliography), the catalogue of the British Foreign Office Library [98], Earle's *Problems of the Near East* [358], Buell's *Problems of the Pacific* [356]. The politics student's source material, even more than the historian's and economist's, lies in official government publications (cf. chap. 9).

The *American Political Science Review* [397] and the *Political Science Quarterly* [405] include extensive reviews and notices, chiefly of books in English. Among foreign periodicals, one may refer to the British Library of Political Science *Bulletin* [398], *Revue des sciences politiques* [406], *Zeitschrift für die gesamte Staatswissenschaft* [408], etc.

The study of municipal government receives bibliographical attention in the *Municipal Index* [403], the *National Municipal Review* [404], *Tablettes documentaires municipales: bibliographie analytique,* published by the Union Internationale des Villes [407], etc.

The list of *Serials of an International Character* [1139] compiled at Columbia University Law Library, includes periodicals of international law. The Reference Service on International Affairs publishes useful bibliographies from time to time in its *Bulletin* [396], and, within its staff capacity, will give direct information service in answer to queries on current international events. The *British Yearbook of International Law* [399] and *Grotius, annuaire internationale* [401] contain excellent reviews, summaries, and lists. A current enumerative list of first importance is the monthly *Bibliographical Bulletin on International Affairs* [335], divided into two parts: 1. "Vie politique, économique et sociale." 2. "Organisation internationale et mouvements généraux de la vie intellectuelle." It contains select lists of books (drawn from current bibliographies and trade lists) and of "les principaux articles parus . . . dans 400 périodiques." Among journals of international law, the French pay most attention to bibliography, particularly the *Journal du droit international privé* [402], often referred to as "Clunet," the name of its editor. For American literature one should consult also the *American Journal of International Law* [395]. Cf. also the current list on "International Relations" in *Foreign Affairs* [400].

LAW

"King James the First of England is reported to have complained on one occasion that, upon his submitting a question of law to the leading lawyers of the kingdom, 'the maist that ony of them could do was to refer'" (*Law-Books and Their Use* [414], introd.). The layman, of course, cannot even "refer"; so elaborate is the system of legal reference that a list of legal abbreviations fills over a hundred pages in Hicks's *Materials and Methods of Legal Research* [412]. (The ordinary bibliographer would list this book as we have, but the legal profession, according to a note on the fly-leaf, will "refer" to it as "Hicks, *Legal Research*"!—ignoring the first part of the title.)

Hicks's manual is divided into three parts: "Law-Books and Their Use," "Law Libraries," and "Bibliographical Manual" (including "Books and articles about law books," lists of American, Irish, Scotch, and Canadian law reports, of Anglo-American legal periodicals, etc.). It is very complete for Anglo-American law, though it may be supplemented for English law by British bibliographies—Sweet and Maxwell's *Guide to the Legal Profession with Suggested Courses of Reading* 422 (an elementary guide for English law students) and *Complete Law Book Catalogue* 421, etc.

Winfield's *Chief Sources of English Legal History* 424 (cf. especially chap. 2, "Existing bibliographical guides"), Vinogradoff's *Outlines of Historical Jurisprudence* 423 (with foot-note references assembled in bibliographies at ends of volumes), and Sherman's *Roman Law in the Modern World* 420 (with bibliography) are also mentioned here as examples of bibliographies in the theoretical and historical phases of legal study which are of general interest outside as well as inside the legal profession.

For an introduction to the bibliography of continental European law we cannot do better than refer to the Library of Congress Law Library's bibliography of bibliographies, by Borchard 394. From that list we have selected as famous examples of comprehensive bibliographies the encyclopædic *Répertoire général alphabétique de droit français* 419 (including a *Bibliographie de la bibliographie* by Dramard) and Picard and Larcier's *Bibliographie générale et raisonnée du droit Belge* 418. Reference should also be made to bibliographies of law published since Borchard's work, e. g., the *Catalogue* of the Middle Temple Library, London 415; and, in national law, Palmer's *Guide* 417 for Spanish law (also published by the Library of Congress Law Library), Fuchs's brief *Juristischer Literaturführer* 410, Kelmann 413 for Soviet Russia, etc.

On the legal importance of government publications, cf. Miller's article, *U. S. Public Documents as Law Books* 416; on legal society publications cf., for example, Small's check list 409.

American and English periodical literature was indexed by Jones and Chipman (to 1907); from 1908 on, the American Association of Law Libraries has published a quarterly *Index to Legal Periodicals* [426], covering over sixty periodicals in law and politics and cumulated annually in the last number. The American Bar Association *Journal* [425] is important for book reviews and summaries.

As examples of foreign journals most likely to contain bibliographical material, we should mention: *Jahrbuch der internationalen Vereinigung für vergleichende Rechtswissenschaft und Volkswirtschaftslehre* [427], and *Nouvelle revue historique de droit français et étranger* [428] (cf. Borchard).

EDUCATION

The study of education, like the study of law, has both its professional, practical phase and its theoretical and historical interests. Every subject in the curriculum has its own educational and pedagogical literature, and we have already taken pains to indicate this by including in our list the histories of various branches of study. Also the subject of education as a whole has its ramifications in the fields of history, sociology, religion, philosophy, etc. (Cf. *Encyclopædia Britannica*, s. v. "Education.")

The most comprehensive educational reference work in English is Monroe's *Cyclopedia of Education* [442]. Bibliographies are included which will "put them [i. e., teachers] immediately in touch with the best literature relating to any subject." Its article "Bibliographies of Education" constitutes a brief manual, but, unfortunately, fails to include a number of earlier but still useful bibliographies of bibliographies, like that by Langlois [439]; and the whole work in general antedates the present generation of educational theory and experimentation. A foreign encyclopædic work of especial bibliographical importance is Rein's *Encyklopädisches Handbuch der Pädagogik* [443].

To Monroe's list of comprehensive catalogues of educational libraries (Columbia University [432], Philadelphia Board of Public Education, etc.) should be added the later edition of the Leipzig Pädagogische Zentralbibliothek [441].

As a classic of select bibliography, Hall's *Hints Toward a Select and Descriptive Bibliography* 436 (1886) should still be mentioned. To illustrate the national type we have selected Blanco y Sanchez's *Bibliografía pedagógica de obras escritas en castellano* 430; and, as a personal bibliography, Israel's *Pestalozzi-bibliographie* 438.

On the history of education, cf., for example, the various lists in Cubberley's *History of Education* 433 and *Syllabus* 434; for examples of bibliographies laying emphasis on the professional pedagogical side, Bolton's *Selected Bibliography* 431.

Among special topics in educational theory, the rapidity of growth of literature on educational psychology, mental tests, etc., has led to a number of bibliographies—e. g., La Vaissière's *Psychologie pédagogique* 440 (100 pages of bibliography), the *Bibliography of Educational Measurements* by the Bureau of Co-operative Research, Indiana University 437, etc., and such projects as a report and complete bibliography on character education methods (under the direction of Edwin D. Starbuck, University of Iowa); a bibliography with discussions of the literature concerning written examinations, by the Carnegie Foundation for the Advancement of Teaching (cf. Kaiser 1406).

For all the special branches and institutions of education, the few bibliographies mentioned here merely suggest the variety of recent bibliographies: on part-time education, Faith E. Smith 444; on vocational education, Hall's description of the *Federal Board for Vocational Education* 1099; on religious education, Soares 445; on universities in Germany, Erman 435; on the *Preceptorial or Tutorial System*, the report, with bibliography, in the American Association of University Professors' *Bulletin*, 1924 429, etc.

The most important periodical bibliography of education, though limited chiefly to works in English, is that begun by Wyer and Lord in the *Educational Review* 447 (1900–07), and continued in the *Bulletin* of the U. S. Bureau of Education 450 (1909–15); this in turn was replaced, for the literature from July, 1911, by a *Monthly* record in the same *Bulletin* (since 1922 not a regular monthly, and under the title *Record of Current Educational Publications*). The record is very complete in both books and periodical articles, and adds under each title brief indications of scope and content or quotations of significant statements. The *Educational Directory* and a great many other titles of these *Bulletins* include valuable, up-to-date bibliographies of foreign as well as American education (e. g., *List of Publications*—1908, *Bulletin* no. 2—and *List of Bulletins* . . . 1906–22—1923, *Bulletin* no. 35). Reference should also be made to the Bureau of Education Library's *Library Leaflets* [451], which contain useful select lists on various topics. The *Pedagogical Seminary* [449] is made up largely of special monographs with extensive bibliographies.

Among the important foreign periodicals, we have selected for mention the *Anuario de bibliografía pedagógica* [446] and the *Internationale Jahresberichte für Erziehungswissenschaft* [448]. (Cf. Monroe, *Cyclopedia*, s. v. "Journals and Journalism," which includes lists and bibliographies of lists in various countries.)

CHAPTER V

MUSIC. ART AND ARCHÆOLOGY. LANGUAGE AND LITERATURE

MUSIC

Grove's *Dictionary of Music and Musicians*[460] is the standard encyclopædia in English, covering the whole field from 1450 to 1904, with good bibliographies. The American supplement (v. 6) includes United States, Canadian, and some South American material, and some material supplementary to earlier volumes. Riemann's *Grundriss*[468] is a short reference manual, including excellent bibliographies. Quarry's concise *Dictionary of Musical Compositions and Composers*[467] has a well-selected list of books of practical value.

There are several excellent bibliographical manuals, the latest and most comprehensive of which is Aber's *Handbuch*[452]. English-speaking students will still find Matthew's *Literature of Music*[463], and Dickinson's *Study of the History of Music*[457] interesting and useful in both text and bibliography. Brenet's *Bibliographie des bibliographies musicales*[454], extending to 152 pages (without annotations), gives some idea of the extent of musical bibliography.

In addition to the famous comprehensive biobibliographies by Fétis[459] and Eitner[458], we are including the more recent *Universal-Handbuch der Musikliteratur*, published by Pazdírek & Co.[472] (1904–10, 34 v. including only "in print" books and "musicalia"), and some representative library catalogues: Boston Public Library, Allen A. Brown Collection[453], British Museum (manuscript music[455] and printed music[456]). A *Bibliographie musicale de la France*, on cards, has been announced (cf. Kaiser[1406]) to include the holdings of five great Paris libraries.

In the field of national music we may refer, e. g., to Sonneck's article on the state of the *Bibliography of American Music* in 1906 [471], and Poueigh's *Musiciens français d'aujourd'hui* [466]. Both thematic index and personal bibliography may be illustrated by Nottebohm and Kastner's work on Beethoven [465].

Besides Schlesinger's *Bibliography of Musical Instruments* [470], there are numerous bibliographies of special instruments and music for special instruments, e. g., Ruthardt's *Wegweiser durch die Klavier-Literatur* [469]. There are bibliographies of vocal music of all sorts in all countries, e. g., Rollins's *Analytical Index to the Ballad Entries* (1557–1709) *in the Registers of the Company of Stationers* [462], the New York Public Library's list on *Folk Music of the Western Hemisphere* [464], Sears and Crawford's *Song Index* [470.1], etc.

Much fault has been found with the state of periodical bibliography of music—cf., for example, Altmann's article [473]. The most comprehensive and satisfactory periodicals at present are Hofmeister's *Handbuch der musikalischen Literatur* [474], (chiefly German material, compiled for the trade) first published in 1844–45, and supplemented by an "Ergänzungsband" every six years, and the *Jahrbuch der Musikbibliothek Peters* [475] (the best universal bibliography of books about music). American music, but not literature about music, is listed in the U. S. Copyright Office *List of Copyright Entries* [1205] part 3. Lists and reviews may be found in *Music and Letters* [476], *Revue musicale* [479], *Revue de musicologie* [478] (i. e., music literature), *Revista musical catalana* [477], *Rivista musicale Italiana* [480], *Zeitschrift für Musikwissenschaft* [481], etc. House organs, too, should not be ignored.

In the use of these bibliographies the student should have in mind the distinction between *music* and *music-literature.* Both are printed and are therefore bibliographical material. The latter is concerned with history, theory, etc., while catalogues of music (i. e., musical compositions) are for the student of music what museum catalogues are for the art student. Again, musical compositions are used from two points of view: (1) As theoretical and historical source material (just as laws, documents of all sorts, old scientific works, etc., are source material for historians of various subjects), and (2) practical, for the musician's performance (like the artist's materials and the scientist's apparatus).

It may be noted also that music is no more an independent exclusive field of study than any other subject, and its literature overlaps or is overlapped in the literature of philosophy (æsthetics), physics and psychology (acoustics, etc.), ethnology and folk-lore, poetry, classical and oriental studies (ancient music), and amusements (e. g., dancing). Musical notation was a great problem in the history of printing (cf., for example, Littleton's *Catalogue . . . Illustrating the History of Music* 461 and Gamble's *Music Engraving and Printing* 1529).

ART AND ARCHÆOLOGY

Art and archæology are in great need of a manual bringing together such bibliographical works as there are in the different divisions of the field. Reference works like Reinach's *Apollo* 507 and Michel's *Histoire de l'art* 501 contain lists, at ends of chapters, which are well selected but can hardly be said to present a survey of literature on the topics discussed. Independent select bibliographies of the whole field, like that published by the College Art Association 485, are useful for librarians and teachers in collecting their material but lack the annotations indispensable in a bibliographical guide. (Thus even Sturgis's out-of-date *Annotated Bibliography* 511 (1897) is still useful.)

There are no recent bibliographies to place beside the old *Universal Catalogue* of the Victoria and Albert Museum Library 515 (1870–75), though the *Catalogue annoté* of the Académie Royale des Beaux Arts, etc., Brussels 484 is of considerable extent; cf. also the smaller but more recent catalogues of Boston Public Library 483 and McGill University 497. The student will also find it worth while to read the trade catalogues, e. g., the famous old Weigel's *Kunstcatalog* 517 (1837–66), those published frequently by Hiersemann, Baer, Maggs, etc.*

Biobibliographies of artists are as essential in this field as those of literary authors are to the students of language and literature; Thieme and Becker's *Allgemeines Lexikon der bil-*

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* An unusually interesting publisher's catalogue is the illustrated descriptive booklet of Hugo Schmidt, Munich, *Aus der Werkstatt* (1925).

denden Künstler [512] is one of the most important titles on our list. For an example of personal bibliography, cf. Steinmann and Wittkower's *Michel-Angelo Bibliographie* [510.1].

In the older literary sources (including ancient authors) of the "Theorie und Geschichte der Kunstgeschichtsschreibung," Schlosser's *Kunstliteratur* [508] gives an admirable orientation.

As examples of national art bibliographies, we are listing (though we have not yet seen them) Sommerfeldt's *Norsk arkaeologisk Literatur* [510] and Mandel′štam's list of Russian art literature [498], which are particularly noteworthy because of the importance of the Russian and Scandinavian contributions to archæology, and because of our tendency to neglect works in these less familiar languages.

The fact is, however, that the works of art themselves (original or reproduced) are of more importance than books in both history and technique of art, and, for one catalogue of books, one may find catalogues of art objects by the hundred; cf. Clifford's *Bibliography of Museums and Museology* [503], Mély and Bishop's *Bibliographie générale des inventaires imprimés* [500], etc.

What has been said of art and archæology in general applies to the different period and form divisions of the history of art. We have selected a few titles—chiefly independent bibliographies—as particularly useful or comparatively recent examples:

In classical archæology: the *Katalog* of the Deutsches Archäologisches Institut in Rome [488], and Lyell's *Bibliographical List Descriptive of Romano-British Architectural Remains* [496]. (Cf. bibliography of classical and oriental studies, below.)

In modern art: Harshe's *Reader's Guide* [490].

On the history of art in special countries: Tourneux's series of articles *Salons et expositions d'art à Paris* [513], Blashfield and Hopkins's bibliography of Italian art in their edition of Vasari [514], Coomaraswamy's *Bibliographies of Indian Art* [482], etc.

Examples of bibliographies on special themes or subjects in art: the *Illustrated* sales catalogue of the Minns collection on the "Dance of Death"[502], and the very full bibliographies in Cabrol and Leclercq's *Dictionnaire d'archéologie chrétienne et de liturgie*[724].

Fletcher's *History of Architecture*[489] gives, at ends of chapters, a variety of references for "the study of any style in further detail." There are long bibliographies in Porter's *Mediæval Architecture*[505] and *Lombard Architecture*[504]. The classic library catalogue is that of the Columbia University Avery Architectural Library[486] (1895).[*]

On city planning and landscape architecture, cf. Kimball[492].

In sculpture, we must be content to refer to recent manuals with bibliographical notes and lists for further study, e. g., Post's *History of European and American Sculpture*[506].

In painting, Fierens's *La peinture et les peintres*[1447] is a useful and extensive bibliography, designed chiefly for French-speaking students. For an extensive bibliography of the history of painting technique, cf. Laurie's *Materials of the Painter's Craft*[493]; and, for an example of the ephemeral but useful list of references, the Washington, D. C., Public Library's *Contemporary American Painters*[516].

On engraving, we have Levis's monumental *Descriptive Bibliography of the Most Important Books in the English Language*[494], the extensive bibliographies in Hind's *Short History of Engraving and Etching*[491], Colin's *La gravure et les graveurs*[1447], etc.

Among the decorative arts, cf. Solon's immense *Ceramic Literature*[509]; for ancient vases, the references under individual vases in the *Corpus vasorum antiquorum*[487]; Marquet de Vasselot's *Bibliographie de l'orfévrerie et de l'émaillerie françaises*[499]; von Lipperheide's famous *Katalog* of his "Kostümbibliothek"[495]; etc.

The greatest periodical bibliography in the field of art was the *Internationale Bibliographie der Kunstwissenschaften*[521] (1902–20), "ein möglichst übersichtliches, bis|ins Detail systematisch geordnetes Hilfsmittel." The withdrawal of a governmental subsidy in 1919 proved fatal to its prospects of continuance. The *Répertoire d'art et d'archéologie* 522 contains: (1) a descriptive list of the articles on art subjects in over 130 periodicals of various countries (about 50 French periodicals), arranged by countries and names of periodicals, (2) a list of sales catalogues arranged by countries, and (3) a classified "Bibliographie" of books. The *Gazette des Beaux-arts* 520 includes a semi-annual classed list of new books "sur les beaux-arts et la curiosité."

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[*] Their card catalogue is planned to become a union architectural catalogue of the Library of Congress and of all libraries in the vicinity of New York.

For ancient art reference should also be made to the "Bibliographie" published with the *Jahrbuch* of the Deutsches archäologisches Institut 519. For British archæology (and other antiquarian researches) consult Gomme's *Index to Archæological Papers*, 1665–1890, the *Index of Archæological Papers* (for 1891–1910), and the *Year's Work in Archæology* 525 (1921–). Among the journals in the various countries which devote more or less space to reviews, we should note the *American Journal of Archæology* 518, *Revue archéologique* 524, *Repertorium für Kunstwissenschaft* 523, etc.

LANGUAGE AND LITERATURE

The study of language and literature in recent times is divided into more or less mutually exclusive divisions. The attempts to cover the whole history of literature, like Drinkwater's *Outline*, have been rather less than more successful than the "outlines" of history and science. Probably the best general work to cite is the *Warner Library of the World's Best Literature* 534. The first 27 volumes are an anthology; but volumes 28 (*Readers' Index of Authors*), 29 (*Readers' Digest of Books*, by Helen Rex Keller, also published separately) and 30 (*Students' Course, General Index*, etc.) are useful as select bibliographies.

Some of the books mentioned in connection with methods of research include bibliographies of some general interest (Morize 72, Mazzoni 24, etc.). Gayley and Kurtz's *Methods and Materials of Literary Criticism* 530 is particularly useful, though its scope is nominally limited to poetic literature. In addition to the bibliographies at the ends of chapters, there is a general bibliographical appendix classed in 44 groups and including some lists of even broader than philological interest (bibliographies of bibliographies, encyclopædias, academic dissertations, literature in general, etc.). It is unfortunate that this appendix is not printed in more legible style and type and accompanied with more annotations.

We have listed only one periodical covering the whole field of literature, *Euphorion* [536], although since 1921 the systematic bibliographical record has given place to reviews and brief notices.

In the field of comparative literature, in addition to Gayley and Kurtz, one should include Betz's *La littérature comparée; essai bibliographique* [526], supplemented by Jellinek's *Studien zur vergleichenden Literaturgeschichte* [543] (1901–09) and the *Revue de littérature comparée* [542] (1921–). As examples of bibliographies concerned with special topics or special forms in general and comparative literature, we may mention: Price's *English-German Literary Influences* [668], the references in Creizenach's *Geschichte des neueren Dramas* [528], Girault de Saint-Fargeau's *Revue des romans* [531] (still occasionally useful to supplement lists like Drury's *Novels too Good to Miss* [673], Baker [669], etc., with foreign titles not available in English translation).

Although students of comparative literature have been rather scornfully dubbed "the modern scholiasts," the field of comparative philology and comparative grammar is an old and well-recognized specialty. Most works are, however, limited at least to one family of languages, e. g., Meillet's *Introduction à l'étude comparative des langues indo-européennes* [532] (with a good bibliography of recent works—especially works in French) and the *Indo-germanisches Jahrbuch* [537] (chiefly bibliographical in content).

The increasing tendency of the various sciences to overlap and to regroup themselves along national lines is particularly evident in the bibliographies of language and literature. Many of these go so far in the interpretation of literature in the broad sense (including books on all phases of the civilization of a given country) that they fall within our later category of national bibliography (cf. chap. 10). Our outline endeavors to keep the distinction, however, in the case of modern occidental languages, and follows the comprehensive understanding of the word *literature* only in case of the ancient and oriental languages. Orientalists and classicists are primarily philologians, including both language and literature, and are also historians, archæologists, philosophers, economists—sometimes, even engineers.

The only reference-guide to the bibliography of ancient civilization as a whole is to be found in the bibliographical portions of the *Cambridge Ancient History* [93]. The "general reader is constantly kept in view," and the bibliographies "do not aim at completeness. They include modern and standard works and, in particular, books used in writing the chapters. Many technical monographs, especially in journals, are omitted, but the works . . . registered below will put the reader on their track." (Cf. also Otto [107].)

ORIENTAL STUDIES

Gabrieli's *Manuale de bibliografia musulmana* [560] is the best bibliographical manual available, not only for Islam, but for oriental studies in general, since it includes a list of general oriental bibliographies. The best comprehensive oriental bibliographies are probably the catalogues of the Deutsche Morganländische Gesellschaft [557], the British Museum [548], the Bibliothèque Nationale [573-74], etc. Among reference works of special bibliographical importance should be mentioned the *Jewish Encyclopædia* [564] and the *Encyclopædia of Islam* [558].

The justly celebrated *Orientalische Bibliographie* [593] forms, with its predecessors, J. T. Zenker's *Bibliotheca* (1846–61), *Wissenschaftlicher Jahresbericht*, etc. (1859–81), K. Friederici's *Bibliotheca* (1876–83), and *Literaturblatt*, etc. (1883–86), a continuous periodical record of the bibliography of oriental studies since 1846. Under the head "Allgemeines" it includes bibliographies, collections, encyclopædias, and also works of general interest in history, geography, the auxiliary sciences, art, law, etc.; the second large division includes special lists relating to "Altäische Völker," "Ostasien und Oceanien," "Indogermanen" (i. e., in Asia), "Semiten," "Afrika." The publication is always in arrears and one should therefore keep up with journals like the monthly *Orientalistische Literaturzeitung* 594 (long reviews and very full lists of books and periodical articles), the *Journal asiatique* 590, *Journal of the Society of Oriental Research* 596, *Journal* of the American Oriental Society 588, *Zeitschrift* of the Deutsche Morgenländische Gesellschaft, etc. Trade catalogues, which appear at more or less regular intervals, are also important current sources, e. g., the famous *Luzac's Oriental List and Book Review* 592, and similar lists published by Probsthain (e. g., app. no. 576) and by Goldstone in London, by Geuthner in Paris, etc.

The different divisions of oriental studies are so specialized that we should supplement these general oriental bibliographies with mention of the following more special works:

For Egypt there is an introductory bibliography included in vol. 1 of Petrie's *History of Egypt* 575. The best introduction is, however, De Ricci's *Esquisse d'une bibliographie égyptologique* 556. Two recent and extensive library catalogues are those of the Brooklyn Institute of Arts and Sciences Museum (Wilbour Collection) 549 and Pratt's list of books and articles in the New York Public Library 569. Two important journals, *Journal of Egyptian Archæology* 591 and *Ægyptus* 586, include bibliographical summaries which are very complete in everything that concerns Egypt down to the Arabic period. For later periods of Egypt, reference should be made to Ibrahim Hilmy's *Literature of Egypt and the Sudan* 563.

For ancient Babylonia and Assyria we have listed Fossey's *Manuel d'assyriologie* 559 (50-page bibliography in v. 1), the comprehensive bibliography published by the New York Public Library 571 (so far as work based largely on the contents of a single rich library can be called comprehensive), Weidner's recent *Die Assyriologie* 1914–1922 582, and Budge's *Rise and Progress of Assyriology* 551.

For Arabic literature Chauvin's *Bibliographie des ouvrages arabes ou relatifs aux arabes* 553 is a monumental piece of work, and also, by the way, a valuable source for students investigating the sources of mediæval romances and other literary themes. Steinschneider's *Die arabischen Uebersetzungen aus dem griechischen* 579 is a topical bibliography of especial interest owing to the important part played by the Arabs in the transmission of Greek civilization to late mediæval and modern times.

Steinschneider is also famous for his pioneer work in accurate bibliography of "Hebraica" and "Judaica." A discussion of his important works both in the general field and in special topics may be found in the *Jewish Encyclopædia* 564, v. 3, s. v. "Bibliography." This article is an excellent introduction to the subject, though it has to be supplemented now by a whole generation of periodical bibliographies of oriental studies in general and of specifically Jewish studies—e. g., *Die Palästina-Literatur* 595. A recent tendency toward popular writing and popular bibliographies should be noted, e. g., in the various lists published from time to time in the *American Jewish Yearbook* 587. There are a number of bibliographies of the Jews in special countries, e. g., Rosenbach's *American Jewish Bibliography* 577, and the post-war developments in the history of Palestine and the Jews deserve a fuller bibliography than has yet been compiled.

As examples of recent bibliographies of other Western Asiatic nations, we should mention Contenau's *Éléments de bibliographie hittite* 554, the New York Public Library's list of references on *Armenia and the Armenians* 570, Masson's *Éléments d'une bibliographie française de la Syrie* 566. Other recent retrospective bibliographies may be found in articles in the various journals mentioned above.

In the Indo-Iranian field, special reference should be made to the *Cambridge History of India* 552, Winternitz's *Geschichte der indischen Literatur* 585, the *Catalogue of the Library of the British India Office* 561, Probsthain's catalogue, *Sanskrit and Allied Literature* 576, the New York Public Library's analytical *List* on Persia 572.

A good introduction to the bibliography of the Far East is Hülle's article *Geschichte und Inhalt der Wissenschaft von Ostasien* 562, which students at all interested in the field should read. There are several famous comprehensive bibliographies by Cordier 555. Yale University Library has published a select list by F. W. Williams, *The Best Hundred Books on China* 583. Of the several bibliographies on the Philippines, special mention should be made of Blake's *Bibliography of the Philippine Languages* [546] and the monumental volume 53 of Blair and Robertson's *Philippine Islands* [545] (includes bibliography of bibliographies).

There are no recent bibliographies of Africa as a whole, but the number of reference works and bibliographies of special countries and colonies is considerable, e. g., Nathan's *South African Literature* [568], Luke's *Bibliography of Sierra Leone* [565], Bruel's *Bibliographie de l'Afrique équatoriale française* [550], Minutilli and Ceccherini's *Bibliografia della Libia* [567], Haferkorn's *South African War* [581], Starr's *Bibliography of Congo Languages* [578], etc.

Under Australia, New Zealand, etc., we have listed only Williams's *Bibliography of Printed Maori* [584]. In these British dominions, as well as in India and South Africa, there is, or is developing, a system of national bibliography similar to that of Great Britain.

For Oceania in general the student may find some useful references of the best guide-book type in Stewart's *Hand Book of the Pacific Islands* [580]. The Bibliothèque Nationale has an extensive *Catalogue de l'histoire de l'Océanie* [573]. There are a number of bibliographies concerned with special islands or languages, a few examples of which must suffice: Ballou's *Bibliography of Books in the Native Hawaiian Language* [544], Blessing's *Some* [recent] *References on Easter Island* [547], etc.

CLASSICS

The study of European languages and literatures naturally begins with the classics (Greek and Latin). Exhaustive and elaborate reference works, covering philology, history, archæology, antiquities of all sorts, are the "Pauly-Wissowa" *Real-Encyclopädie der classischen Altertumswissenschaft* [608] and the *Handbuch der Altertumswissenschaft* [602] known, from its former editor, as the "Müller *Handbuch*," and resembling anything but a handbook in appearance, as it runs into 20 or 30 quarto volumes. Whibley's *Companion to Greek Studies* [618] and Sandys's *Companion to Latin Studies* [612] are excellent briefer works in English, with briefer lists of references. Laurand's *Manuel des études grecques et latines* [605] is perhaps best described as an encyclopædic syllabus; the treatment of some topics is largely bibliographical and, throughout, "Le présent manuel indique sur chaque question les ouvrages principaux. On trouvera dans ceux-ci la mention des autres et, de proche en proche, on arrivera à connaître tous ce qui est considéré comme ayant de la valeur"—a long road for the student who aims at an exhaustive bibliography of a given topic!

We can hardly hope for or desire a universal bibliography of classical studies; even extensive catalogues of classical libraries, like the recent ones published by the Frankfurt Stadtbibliothek [601] and the societies for the promotion of Hellenic and Roman Studies [614], are far from complete—cf. the comparative bulk, for example, of Fock's sales catalogue of classical dissertations alone, published a generation ago [599]. But the young classical student could be saved considerable time and effort by a new edition of one of the older manuals of classical bibliography (Hübner [604] (1889) or Valmaggi [616] (1894)).

We can mention only a few examples of some of the types of bibliographies which would be included in such a compilation. Two recent examples, in different countries, of the more or less popular select bibliography, may be mentioned: *The Claim of Antiquity, with an Annotated List of Books for Those Who Know neither Latin nor Greek* [597], and Raabe's *Von der Antike; ein Führer durch die gemeinverständliche Literatur vom klassischen Altertum* [1274] (a book-trade publication).

For the history of the subject, the identification of classical philologians and their works (biobibliography), Pökel's *Philologisches Schriftsteller-Lexikon* [609] and Sandys's famous *History of Classical Scholarship* [613] are indispensable.

Comprehensive, though by no means exhaustive, bibliographies on divisions of the field are Engelmann's *Bibliotheca scriptorum classicorum . . . von* 1700 *bis* 1878 [598] and Klussmann's continuation covering from 1878 to 1896. Klussmann's work was originally published in the *Jahresbericht über die Fortschritte der klassischen Altertumswissenschaft* [623] (commonly known as "Bursian's *Jahresbericht*") and continuations appear in this same periodical from time to time (not annually as the title seems to indicate).

On the Greek side of classical studies, Van Hook's *Greek Life and Thought* 617 has an excellent bibliographical appendix, the titles "mostly in English, although a number of important French and German works are included." In Greek literature Masqueray's *Bibliographie de la littérature grecque* 606 is a book which every classical student should have at hand for convenient reference. At the beginning there is a section on general works and bibliographies useful to classical students in general; and the great part of the book is designed to "indiquer sur chaque auteur le livre capital, l'article important, l'édition dont il faut se servir, le manuscrit, souvent reproduit en phototypie, auquel il est nécessaire de remonter; puis . . . dire pour chaque auteur, pour chaque ouvrage, ce qu'on sait, ce qu'on ne sait pas, ce qu'on cherche, les principales questions qu'on tâche de résoudre."

As examples of topical bibliographies in classical literature we have selected Foster's *English Translations from the Greek* 600 (though too exclusively based on national and trade bibliographies) and the bibliography of Epictetus recently issued by Oldfather 607.1.

For comprehensive bibliography of Greek history one should refer again to the periodical summaries in Bursian 623. For extensive bibliographies of period and country divisions of classical history, cf. the works on Egyptology cited above, Ruelle's *Bibliographie générale des Gaules* 611, the bibliography included in Rostovzev's *Iranians and Greeks in South Russia* 610, etc.

For Byzantine Greek literature we can only refer to the history by Krumbacher in the Müller *Handbuch* 602. For modern Greek we may cite Meyer's *Neugriechische Studien* 607, which includes *Versuch einer Bibliographie der neugriechischen Mundartenforschung*, and Legrand's series on *Bibliographie hellénique* 1359.

For mediæval Latin there are many references in the volume in the Müller *Handbuch* by Manitius, in Harnack's *Geschichte der altchristlichen Literatur* 603, and in Souter's excellent *Hints on the Study of Latin (A. D. 125–750)* 615 (largely bibliographical).

Bursian's *Jahresbericht* 623 is the most important periodical in the field of classical studies. The various "Berichte" cover in very complete and critical fashion the contributions, whether books or articles, on various classical authors and subjects, over a period of years. The condensed arrangement of these summaries is designed rather for systematic reading or study than for ready reference; but there is hardly a division of classical study in which the use of them is not indispensable. (Cf. Valmaggi 616 for a list of these bibliographies up to 1896.) Published as a supplement to Bursian is the quarterly *Bibliotheca philologica classica* 619, which is the best current bibliography in this field and the only one having claim to exhaustiveness. The summary *Year's Work in Classical Studies* 620 is cast in more interesting form and is in English. For shorter than annual periods there are journals, including reviews and occasional bibliographies, in all languages. The best and most frequent is the *Philologische Wochenschrift* 624. The *Revue de philologie* 625 is particularly valuable for its résumés of articles and reviews in other periodicals, as well as for its own reviews. The most important journal in English is the *Classical Review* 621. In their more limited fields the *Revue des études grecques* 626 and *Revue des études latines* 627 are equally indispensable. A list of *Classical Articles in Non-classical Periodicals* was begun in 1920 by the *Classical Weekly* 622 and the undertaking is well worth carrying on along with the reviews and other features of the *Weekly*, since such articles, especially those in American periodicals, are likely to escape the notice of the more complete foreign periodical bibliographies.

MEDIÆVAL AND MODERN LANGUAGES AND LITERATURE

The literature of the Middle Ages was chiefly in Latin or, in later centuries, in the various modern languages, and its bibliography is divided accordingly. We may refer here, however, to a few bibliographies which lay emphasis on the mediæval as such: Spence's *Dictionary of Mediæval Romance* 533 (rather sparse bibliographical references and a five-page "Bibliography of standard works on mediæval romance"), and, the most important reference work in its field, the British Museum *Catalogue of Romances* 527. Mediæval literature is also included in the scope of the journals of mediæval studies mentioned under mediæval history.

For mediæval vernacular literature Edwardes's *Summary of the Literatures of Modern Europe* 529 is a useful select compilation of biographical and bibliographical information about the principal authors of England, France, Germany, Italy, and Spain, "from the origins to 1400." The lists of "General authorities" (including bibliographical works) is useful but no longer adequate.

Under modern languages in general, we list only a small group of periodical bibliographies. The *Literaturblatt für germanische und romanische Philologie* 539 has long lists of books, reviews, and analyses of the contents of even the more special German and foreign periodicals. The March number of the *Publications of the Modern Language Association* 540 (American) is a complete, though too condensed, annual list of American books and articles on modern language topics. The *Leuvensche Bijdragen, Bijblad* 538 is a useful supplementary list of new books and periodical articles. Considerable space is given to reviews in the *Modern Language Review* 541, the *Archiv für das Studium der neueren Sprachen und Literaturen* 535 (known as "Herrig's *Archiv"*; specializes in English studies), etc.

CELTIC LANGUAGES

There is no comprehensive bibliography of Celtic studies. The best title for first reference is Tourneur's *Esquisse d'une histoire des études celtiques* 632. Among the important special bibliographies published since Tourneur are Maclean's *Typographia scoto-gadelica* 631, the *Bibliography of Irish Philology and . . . Literature* by the National Library, Dublin 630, the selected lists of Welsh books in *A Nation and Its Books* 629, issued by the Welsh Department of the British Board of Education. The *Bibliotheca celtica* 628, published by the National Library of Wales, is probably the chief current bibliography (an issue on cards has been announced).

ROMANCE LANGUAGES

In the Romance field as a whole, Gröber's *Grundriss* 633 is the authoritative standard reference work, and includes important bibliographies, though the older volumes are now very much out of date. Of the two foremost periodical bibliographies, the *Zeitschrift für romanische Philologie, Supplementheft; Bibliographie* [636] (a very comprehensive annual, but without annotations) still lacks volumes covering 1913–23, and the *Kritischer Jahresbericht über die Fortschritte* [634] has not appeared since 1915. *Romania* [635] may be cited as one of the best examples of review journals dealing with the whole Romance field.

ITALIAN

Mazzoni's *Avviamento* [24] has been mentioned among general works on bibliography (chap. 1), but is specifically designed as a manual for students of Italian literature. As Mazzoni prefers to cite Italian studies wherever possible, Afstanger's select list, *Langue, la littérature et les écrivains italiens* [1447] should also be consulted. For a more comprehensive bibliography of Italian literature, cf. d'Ancona's *Manuale* [637], v. 6; for a contemporary biobibliography, Rovito's *Letterati e giornalisti* [1291]; and, for examples of personal bibliography, one may select any of the numerous Dante bibliographies, e. g., Koch's *Catalogue of the Dante Collection* at Cornell University [638], Toynbee's *Britain's Tribute to Dante* [641], or, for a less obvious example, Kaposi's *Bibliografia dantesca ungherese* [639].

Of the periodicals chiefly devoted to Italian studies, the *Rassegna* [640] gives most space to reviews.

FRENCH

The best introduction to the bibliography of French studies is Morize's brief survey of "Implements and Tools" in his *Problems and Methods of Literary History* [72]. Lanson's *Manuel* [647] is the "constant companion" and, in spite of its "apparent dryness," "the friend of every working hour" (Morize). It is selective but extensive, and purposes: "1. Donner ce que pouvait conduire à ce que j'omettais. 2. Former un ensemble qui répondît à la culture et aux besoins actuels de la moyenne des étudiants en littérature française." In addition to the full lists on literary topics the student will find useful shorter lists on general bibliography and on other subjects such as French language, history, philosophy, etc.

As examples of additions which might be made to Lanson, we may mention, for the comprehensive type, the Hague Koninklijke Biblioteek, *Catalogus der fransche Taal- en Letterkunde* 645; and, for the topical type, a few titles published subsequently to Lanson, Lachèvre's *Bibliographie des recueils collectifs de poésies du XVIe siècle* 646, Ferrari's *Traduzioni italiane del teatro tragico francese* 643, Désormaux's *Bibliographie méthodique des parlers de Savoie* 642, and Maggs brothers' *Catalogue d'une collection unique des éditions originales de Ronsard, par Seymour De Ricci* 648.

For the mediæval period, not included in Lanson, we should refer to Paris's *Littérature française au moyen âge* 649 (with extensive bibliography) and Foulet's *Bibliography of Mediæval French Literature for College Libraries* 644.

In addition to the more general periodicals already mentioned, reference should also be made to review journals concerned specifically with French language and literature, like the *Revue d'histoire littéraire de la France* 652, *Zeitschrift für französische Sprache und Litteratur* 654 (included an annual "Novitäten-Verzeichnis" up to 1916–17). Of more special character are the "Causéries littéraires," accompanied by detailed bibliographies, published by the *Bibliographie de la France* 1247 and *La fiche bibliographique* 653, published by Hector Talvert, (1923–), on 5 by 8 cards and primarily concerned with material not included in Lanson or Thieme 651.

SPANISH, PORTUGUESE, AND OTHER ROMANCE LANGUAGES

The interest of many students in the Spanish field is so broad that the field itself might well be named Spanish studies, and the most important bibliographies, like Foulché-Delbosc's *Manuel de l'hispanisant* 1330 are, accordingly, national bibliographies (chap. 10). On the other hand, Fitzmaurice-Kelly's *Spanish Bibliography* 656 (cf. the very nearly identical list included in his *Historia de la literatura española*, 4th ed., Madrid, 1926) is not a national bibliography as its title would indicate, but is limited, fairly strictly, to Spanish literature. Its general satisfactoriness as a manual is qualified by the lack of annotations, imperfect classification scheme and index, and inadequacy in the list of bibliographies of Latin-American literature (even Jones's exhaustive *Hispanic American Bibliographies* 1340 is omitted).

As examples of recent topical bibliographies supplementary to Fitzmaurice-Kelly's list, we may cite Palau y Dulcet's *Bibliografía de Cervantes* (reprinted from his *Manual del librero* 1335), Flores's *Spanish Literature in English Translation, a Bibliographical Syllabus* 655. On the linguistic side, reference should be made to the old but still standard Viñaza, *Biblioteca historica de la filología castellana* 664 and to Marden's very complete bibliographies of American Spanish 659.

The most important periodical bibliography is that in *Revista de filología española* 662 (also published separately three times a year). For works earlier than 1914, Foulché-Delbosc's *Bibliographie hispanique* 1325 covers the years 1904– .

For Latin America it would be difficult to supplement Jones's and Marden's very complete lists, except by more recent titles, such as Iguíniz's *Bibliografía de novelistas mexicanos* 1343, Leavitt's *Argentine Literature* 657, etc.

For Portugal cf. Bell's *Portuguese Bibliography* 656, compiled on a plan similar to that of Fitzmaurice-Kelly, except that bibliographical works are indicated by an asterisk instead of being grouped in a special category, and that a bibliography of the Portuguese language is also included.

We should not close these paragraphs on the bibliography of the Romance languages without reference to a few outstanding bibliographies of some of the other local or language groups whose literature and bibliography are becoming increasingly distinct with the increase of nationalistic sentiment:

For Provençal the New York Public Library's *Provençal Literature and Language*, by Haskell, 661 and Lefèvre's bibliography of the greatest Provençal author, Mistral 658.

For Catalan, Ribelles Comín's *Bibliografia de la lengua valenciana* 663 and the *Revista de bibliografia catalana* 1336.

GERMANIC LANGUAGES

For the whole group of Germanic languages the standard reference work, with bibliographies interspersed, is Paul's

Grundriss 667. There is a comprehensive *Jahresbericht über die Erscheinungen* 665, and the *Journal of English and Germanic Philology* 666 is good for reviews. These should be added to the bibliographical apparatus in the fields of individual Germanic languages.

ENGLISH

In English literature, the Cambridge histories of English literature and American literature 670-71 are now the standard reference works (subject to the variability that is involved in works of multiple authorship) and attempt to supply, with each chapter, a "sufficient bibliography . . . and to point where he [the student] may best obtain fuller information." Corresponding to the other German *Grundrisse*, we have Körting's compact but old *Encyklopædie und Methodologie der englischen Philologie* 676.

The lengthy title by Cross, beginning *A List of Books and Articles* 672, covers a really brief and admirably selected list of 427 bibliographical works in the field of English studies, and in other general and special fields which concern the student of English. Its brevity, convenient form, general accuracy, and brief notes descriptive of scope and content, make it an excellent introductory manual. The still more recent (1925) *Register of Bibliographies of the English Language and Literature*, by Northup 678, provides a very full and detailed guide to over 5,000 bibliographies of all sorts of topics and authors. The difference between the scope of Cross and that of Northup may be illustrated, for example, by the fact that Cross lists Wells's most extensive *Manual of the Writings in Middle English* 680 but once (under "Bibliographies . . . arranged by period"), while Northup cites it no less than 150 times (analytically, under each author covered). We have had occasion, in reviewing Northup's book (*Library Journal*, Feb. 15, 1926) to test it both for accuracy and completeness, and were able to make but comparatively few and comparatively unimportant suggestions toward a supplement or new edition.

Among 1925–27 publications which might be included in a supplement are Leisy's article, *Materials for Investigation in*

American Literature 677, Serle's *Bibliography of Australasian Poetry* 679, Drury's popular list of *Novels too Good to Miss* 673, Griffith's *Bibliography of Chaucer, 1908–24* 674, etc. On the linguistic side of English studies, reference should be made to the excellent comprehensive bibliography by Kennedy 675.

Among periodical bibliographies, *Anglia, Beiblatt* 681 deserves first mention, as it consists chiefly of numerous and detailed reviews (its supplementary list of "Neue Bücher" has been omitted in the last few years). The *Annual Bibliography of English Language and Literature* 688 by the Modern Humanities Research Association is the best comprehensive enumeration. The *Year's Work in English Studies* 686, by the English Association, is also a valuable current summary, but is less complete for foreign publications. For reviews, in addition to *Anglia*, cf., for example, the *English Journal* 687, English Association *Bulletin* 685, *Review of English Studies* 689, etc.

There are also current bibliographies of special forms of English literature—like the *Dramatic Index* 684, O'Brien's *Best Short Stories* 682 (anthology and bibliography)—and of special authors, notably that included in the *Jahrbuch* of the Deutsche Shakespeare-Gesellschaft 683. The English student will also keep in close touch with the more general modern-language journals mentioned above, as well as the still more general periodicals listed in chaps. 10–11.

GERMAN

German language and literature have been supplied with an excellent, though over-condensed manual in Arnold's *Allgemeine Bücherkunde zur neueren deutschen Literaturgeschichte* 690. This is really a manual of German national bibliography, with select lists of general and special bibliographies—on history of printing, libraries, periodicals, anonymous and pseudonymous literature, etc.—and lists of important works on German music, science, etc. Paul's *Grundriss* of Germanic languages and literatures 667 is particularly indispensable for German. Important bibliographies are included in literary histories like Scherer 695.

Among works on special forms of literature, Goedeke's *Grund-*

riss zur Geschichte der deutschen Dichtung 692 is notably indispensable as both reference work and bibliography. Recent topical bibliographies which may be mentioned by way of supplement to Arnold are: Rudwin's *Historical and Bibliographical Survey of the German Religious Drama* 694, Bartels's *Die besten deutschen Romane* 1274, Morgan's *Bibliography of German Literature in English Translation* 693, and Berend's *Jean-Paul Bibliographie* 691.

The most important periodical bibliographies are the *Jahresberichte über die Erscheinungen auf dem Gebiete der germanischen Philologie* 665, and the more specialized and somewhat cumbersome *Jahresberichte für neuere deutsche Literaturgeschichte* (1892–1915). The latter title and the corresponding section of the former are continued since 1924 in the *Jahresbericht über die wissenschaftlichen Erscheinungen auf dem Gebiete der neueren deutschen Literatur* 696, though, unfortunately, the published lists represent only a selection from the complete MS. compilation now kept on file at the Deutsche Bücherei in Leipsic (cf. v. 1, pref.). (Cf. Arnold's useful table (*op. cit.*, p. 10) on the relation of these periodicals to retrospective bibliographies.) Another new periodical, *Teuthonista* 697, is devoted to "deutsche Dialektforschung und Sprachgeschichte." Among review journals we should mention further the quarterly *Zeitschrift für deutsche Philologie* 698, the titles mentioned above under modern languages and under Germanic languages in general, and, especially for bibliographies and reviews of the actual works of German literature as distinguished from works about the literature, the general periodicals (chap. 11) and the national trade bibliographies (chap. 10).

DUTCH

The Dutch language and Dutch literature have received but little independent attention in the American college curriculum, and accordingly our information is limited to the citation of a few of the more obvious titles; first Paul's *Grundriss* and the other general Germanic bibliographies mentioned above and the national bibliographies (cf. chap. 10); then, more specifically, Dutch language and literature bibliographies like those listed in Prinsen's *Handboek tot de Nederlandsche Letterkundige Geschiedenis* [701], Petit's *Bibliographie der Middel-Nederlandsche Taal- en Letterkunde* [700], the library catalogue of the Maatschapij der Nederlandsche Letterkunde te Leiden [699], etc. (For periodicals cf. especially app. nos. 538–39.)

SCANDINAVIAN LANGUAGES

As regards Scandinavian languages and literature, we are in much the same condition, although Scandinavian studies are beginning to receive more attention, and the American student will find a fairly full apparatus of national bibliography for the Scandinavian countries (cf. chap. 10); e. g., a selected list of English translations is included in the American-Scandinavian foundation, *List of Five Hundred Books by Scandinavians and about Scandinavians* [1306], and in the *Nordisk litteraturfortegnelse* [1317] about half the space is given to the belles-lettres. For current literature cf. *Arkiv för nordisk filologi* [702].

As examples of topical and personal bibliographies we may mention the Cornell University library's *Catalogue of Runic Literature* [702.1] (by Hermannsson), the same compiler's *Catalogue* of the Fiske Icelandic collection [1308], and *Bibliography of the Eddas* [1313], and Firkins's *Henrik Ibsen, a Bibliography* [703].

SLAVIC LANGUAGES

For the Slavic languages we cannot do better than refer to Kerner's *Slavic Europe* [1356]. This includes some Slavic titles (transliterated), but "for the most part bibliographies which list works in the Western European languages or sources which contain documents in these languages" (pref.). The same author's *Foundations of Slavic Bibliography* [1355] is even more useful as a bibliographical manual, since it is not limited to works in Western European languages and gives "some idea of the state of bibliography under each of the subdivisions" (cf. chap. 10). We can only refer on hearsay to the encyclopædia of Slavic philology, in Russian, and to recently published examples of topical and personal bibliographies like Piksanov's bibliography of old Russian narratives [708]; Stolarzewicz's *Bibliografja Mickiewiczowska* [711]. We have seen Stanoyevich's *Early Jugoslav Literature* 710 (with useful brief bibliography).

The *Archiv für slavische Philologie* 704 has published from time to time exhaustive bibliographical summaries, covering the years 1870– ; the *Revue des études slaves* 1363 is likewise rich in bibliography*; and there are important bibliographical and review journals in the various Slavic countries (of which we know only the titles), e. g., *Slavia* 709, *Južnoslovenski filolog* 705, the Czechish *Literarni listy*, the Russian *Filologicheskïia zapiski;* the *Kritisch-bibliographischer Jahresbericht der estnischen Philologie* 706, etc.

OTHER EUROPEAN LANGUAGES

For European languages outside the Indo-European group, we may content ourselves here by citing (on hearsay or very slight acquaintance) a few outstanding bibliographies: Vinson's *Essai d'une bibliographie de la langue basque* 717.1, the catalogue of the Basque section of the provincial library at Vizcaya, Spain 717.2, Qvigstad's *Bibliographie der lappischen Litteratur* 713, and Simonyi's *Ungarische Sprache* 714 (chapter bibliographies).

AMERICAN LANGUAGES

A number of bibliographies of American languages have been published in the *Bulletin* 224 of the U. S. Bureau of American Ethnology, e. g., those by Pilling in no. 13, no. 14, etc.; Toomey's *Bibliographies of Lesser North American Linguistic Families* was published as *Bulletin* 1 of the Hervas Laboratory of American Linguistics 716; cf. further Tozzer's *Maya Grammar, with Bibliography* 717, and the journals and other bibliographical works mentioned under ethnology.

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* E. g., in v. 2, Patouillet, J., *Histoire du théâtre russe : essai bibliographique.*

CHAPTER VI

RELIGION. PHILOSOPHY. PURE AND APPLIED SCIENCES

RELIGION

While it is a matter of common information that religious works far outnumbered any other class in mediæval times, it may not be generally known that the current trade lists still show a preponderance of religion over even fiction and social sciences. There is also a similarity in quality among these three classes of literature—there is so much that is practical or popular rather than theoretical or investigative, that a universal bibliography would be, for the research student, as useless as it would be unwieldy. Hurst's *Literature of Theology* 727 was an extensive selection of works in English. Recent select bibliographies are designed chiefly for church workers, and are, for the most part, limited to works in English, e. g., the Union Theological Seminary, *A Theological Library* 738, and the more extensive and annotated *Bibliography* in the *Bulletin of the Western Theological Seminary* 739, v. 10, no. 1 (1918). These lists do include, however, the most important reference works, and may be supplemented by foreign select and annotated lists, like the theology section of the Berlin University Library's *Führer durch den Lesesaal* 1032.1, etc.

Probably the best introduction to a survey of religious bibliography is the section "Concerning Bibliography" in the preface of the *New Schaff-Herzog Encyclopedia of Religious Knowledge* 740. There are also topical bibliographies at ends of articles in this and in other great religious encyclopædias: Hastings's *Encyclopædia of Religion and Ethics* 723, *Encyclopédie des sciences ecclésiastiques* 724 (really a series of encyclopædic works—cf. app.), etc.

We include only a very inadequate list of examples of bibliographies in the various divisions of religious study, and the student will have to supplement Schaff-Herzog by periodicals over a number of years. The literature on comparative religion has been brought up to a comparatively recent date in Jordan's *Comparative Religion, Its Adjuncts and Allies* 731 (1915) and *Comparative Religion, a Survey of Its Recent Literature* 730 (1920), though the compiler is not entirely without bias; and there are individual bibliographical publications for many of the special religions, e. g., the New York Public Library's list on *Druids and Druidism*, by Black 737. (Cf. also the *Jewish Encyclopædia*564 and titles listed under Oriental and Classical studies, Ethnology, Folk-lore, etc.)

For general church history Bratke's *Wegweiser* 719 is a classic bibliographical manual, though it must be supplemented by various later reference works, periodicals, etc.; by bibliographies covering special periods, like Vollmer's *Materialen zur Bibelgeschichte und religiösen Volkskunde des Mittelalters* 741; for special countries, like Mode's *Source Book and Bibliographical Guide for American Church History* 735; for special denominations, like the bibliographies included in the *Catholic Encyclopædia* 721 (also important as a general encyclopædia—cf. chap. 8), Hurter's *Nomenclator litterarius theologiæ catholicæ* 728, Émery's *Introduction à l'étude de la théologie protestante, avec index bibliographicus* 722, Whitley's *Baptist Bibliography* 743; for saints and fathers of the church, e. g., Mandonnet and Destrez's *Bibliographie thomiste* 734; for monastic orders, e. g., Little's *Guide to Franciscan Studies* 733; etc. (Cf. also the titles under History, Classical studies, Archæology, etc.)

There are many bibliographies of the Bible and Bible studies. The most complete list of Bibles (nearly 10,000, in over 400 languages and dialects) is the *Historical Catalogue* of the British and Foreign Bible Society Library 720; cf. also national lists like Wright's *Historic Bibles in America* 744. For a standard reference work on Biblical studies, with bibliographical references, cf. Hastings's *Dictionary of the Bible* 721.2. There is a monumental bibliography of Jesus by Ayres 718.

On the various topics of practical theology, we refer to the select lists of the Missionary Research Library (e. g., Hering's *Recommended Titles on Missions and Related Subjects* 736), Julian's *Dictionary of Hymnology* 732, and, among the individual devotional classics, Hiersemann's sales catalogue of the *De imitatione Christi* [726].

The great periodical bibliography of theological literature was the *Theologischer Jahresbericht* (1881–1913). This has two successors, *Religionsgeschichtliche Bibliographie* [746] (1914–) and the *Bibliographisches Beiblatt*, published with the *Theologische Literaturzeitung* since 1922 [752]. For English and American publications, reference should be made to the *Expositor's Yearbook* [747], *Journal of Religion* [748] (preceded by the *American Journal of Theology*, 1897–1920), *Princeton Theological Review* [749], etc. An index of periodical literature was set on foot in Richardson's *Periodical Articles . . . 1890–1899* [751], but has not been continued. There are many more special journals, with current bibliographies, of which we cite only *Analecta bollandiana* [745] and *Revue bénédictine* [750].

PHILOSOPHY AND PSYCHOLOGY

With the growth of experimental and physiological psychology, there is an increasing tendency to group psychology with the sciences rather than with philosophy, but the comprehensive retrospective bibliographies antedate this new classification, and even the current journals of philosophy and psychology respectively are far from being mutually exclusive.

As important reference works with topical bibliographies, we have listed Eisler's *Wörterbuch der philosophischen Begriffe* [756], and, for biobibliography, his *Philosophen-Lexikon* [755]. Baldwin's *Dictionary of Philosophy and Psychology* [753] includes a special volume of *Bibliography*, by Rand, which is still the most important comprehensive bibliography of the subject—although it includes no title published later than 1902, was mainly dependent on the resources of one great library (Harvard University), lacks critical annotations, and is guilty of occasional inaccuracies in description. Earlier literature may be traced through the other bibliographies listed in the first section of the work; and important later works, especially European works, may be found in Hoffmans's *Philosophie et les philosophes* [1447]. Herbertz's *Philosophische Literatur* [759] is an excellent manual of German publications.

Only slightly less general is the series of bibliographies in Ueberweg's *Grundriss der Geschichte der Philosophie* 763, running to 650 pages, including frequent annotations, especially on German titles, and with a "Philosophen- und Literatorenregister" at the end of each volume. Recent examples of national and topical bibliographies are Leroux's *Bibliographie méthodique du pragmatisme américain* 761, and Sorley's *History of English Philosophy* 762 (with extensive chronological bibliography). There are extensive personal bibliographies of important philosophers, ancient and modern, e. g., Columbia University Library, *Contributions to a Bibliography of Henri Bergson* 754, etc.

For psychology the National Research Council has in preparation a bibliography of bibliographies (Kaiser 1406). Estey's *Bibliography of Psychology* 757 (running to some 2,000 titles) is particularly useful for recent general works, but includes few of the numerous topical bibliographies, such as Manson's *Bibliography of the Analysis and Measurement of Human Personality* 790 (cf. also titles listed under Education—chap. 4), Caillet's *Manuel bibliographique des sciences psychiques* 753.1, etc.

A very complete abstract journal for philosophy was started in 1910, *Philosophie der Gegenwart* 769, but seems to have ceased publication during the War. The most complete current bibliography, classified but not annotated, is the *Psychological Index* 771, which lists annually about 3,000 titles—original publications, books and articles, together with translations and new editions in English, French, German, and Italian. Cf. also *L'année psychologique* 764. Among the many excellent review journals should be mentioned the *Literarische Berichte aus dem Gebiete der Philosophie* 766 (issued by the Philosophische Gesellschaft), *Mind* 767, *Journal of Philosophical Studies* 765, *Philosophical Review* 768 (includes "Surveys," "Periodicals," "Books"), *Revue néo-scolastique* 772, *Psychological Bulletin* 770 (includes abstracts of articles in other journals), *Zeitschrift für Psychologie* 773 (includes annual German bibliography), the new *Psychologial Abstracts* 769.1, etc.

SCIENCES

If, as some adverse critics think, Wells's *Outline of History* is better outline than history, Thomson's *Outline of Science* may be described as better science than outline—its scientific authority is unquestioned, but it does not present a comprehensive outline of the contents and results of the sciences. Its bibliographical references (cf. *Classified Bibliography of Science*, assembled from the *Outline* [782]) form an interesting and valuable list of more or less popular and elementary works on fundamental scientific principles, but can make no pretense to being a systematic, comprehensive guide to the whole scientific field.

The most general authoritative reference work for the sciences is *Handwörterbuch der Naturwissenschaften* [777], edited by Korschelt and others, covering all the natural sciences, inclusive of physics and chemistry, and with good bibliographies. Poggendorff's *Biographisch-literarisches Handwörterbuch zur Geschichte der exakten Wissenschaften* [779] is a classic monument of biobibliography. For contemporary biobibliography reference should be made to such publications as *Who's Who in Science* [802] (international), Cattell's *American Men of Science* [775] (indicates the fields but not titles of works by American scientists), the *Technischer Literaturkalender* [985], etc.

As types of special bibliography in science, we may note such extensive trade catalogues as Sotheran's *Bibliotheca chemico-mathematica* [781]; Beal and Ogden's article on the *Contributions of the U. S. Department of Agriculture to the Bibliography of Science* [774], and the lists of publications of the Bureau of Standards, the Smithsonian Institution, the National Museum, etc.; Deniker's *Bibliographie des travaux scientifiques . . . publiés par les sociétés savantes de la France* [1166]; etc. (cf. chap. 9). National bibliographies of the sciences in general may be illustrated by the British Science Guild's *Catalogue of British Scientific and Technical Books* [785].

A beginning of a manual of general science bibliography is made in Eason's *Where to Look for Scientific Facts* [776], but the lists are very brief and include more general bibliographies than bibliographies of science. There are fairly long lists of periodical titles but with too little description of history, make-up, and content. The plan of the book is excellent, however, and should form the basis of a later, more extended, and more adequate manual. (Cf. Bishop's chapter, "The record of science" [5].)

In this country the bibliography of the sciences has received considerable attention from the National Research Council, a "co-operative organization of scientific men of America," with a membership "largely composed of accredited representatives of about 75 national scientific and technical societies." It publishes in its *Bulletin* [789] and in its *Reprint and Circular Series* [790] matters of interest to science in general: *Bull.* v. 1, no. 3, Cobb's *Periodical Bibliographies and Abstracts*; annual lists of doctor's dissertations in the sciences (*Repr. and Circ. Ser.*, no. 12, 26, 42, etc.); lists of unpublished manuscript bibliographies in special subjects (*Repr. and Circ. Ser.*, no. 27, geology and geography; 36, chemistry and chemical technology; 41, astronomy, mathematics, and physics; 45, biological sciences, etc.); and bibliographies of published bibliographies (*Bull.*, v. 6, no. 36, geology; v. 8, no. 47, physics; v. 9, no. 50, chemistry and chemical technology; etc.). The thoroughness and accuracy of these vary according as they are the results of the compiler's individual researches or are merely assembled from replies to a broadcast questionnaire.

The great periodical bibliography is, or rather was, the *International Catalogue of Scientific Literature* [786], published for the International Council by the Royal Society of London. Each annual issue consisted of 17 volumes, embracing: A, mathematics; B, mechanics; C, physics; D, chemistry; E, astronomy; F, meteorology; G, mineralogy; H, geology; J, geography, mathematical and physical; K, palæontology; L, general biology; M, botany; N, zoology; O, human anatomy; P, physical anthropology; Q, physiology; R, bacteriology. Each part included: (1) schedules and indexes in four languages, (2) an author catalogue, (3) a subject catalogue. "The purpose is to record the titles of all original contributions since Jan. 1, 1901, in certain branches of sciences" (including both books and periodical articles). The resumption of the International Catalogue seems assured, although the auspices and organization of the work have not yet been announced. For earlier periodical and society publications, the Royal Society of London has indexed the years 1800–1900 [794].

The most important bibliographies issued more promptly and at more frequent intervals are in general limited to individual sciences. Among the general scientific journals mention should be made, however, of *Isis, revue consacrée à l'histoire et l'organisation de la science* [787], though the scope of this is so broad that it might be listed among the general bibliographical periodicals, and its chronological arrangement is better adapted to the historian's than to the scientist's use. Of the several journals of strictly scientific point of view which review or list nearly every book of outstanding importance, the chief is probably *Nature* [792], which covers the whole range of science and technology; and the student should also keep in touch with *Science Progress* [795], *Scientia* [796], *Die Naturwissenschaften* [793], *Naturæ novitates* [791], etc. (Cf. Tweedell [798].)

The closer organization of scientists during and since the War has led not only to the increase of abstract journals in special sciences but to attempts to bring together periodical scientific literature in general. We have very comprehensive lists of scientific periodicals, such as that by Sparn [797], and union catalogues like the British *World List of Scientific Periodicals Published in the Years 1900–1921* [803], the Académie des Sciences, Paris, *Inventaire* [784], Lomer's *Catalogue* [788] for Canadian libraries, etc. A well-founded criticism of the union catalogues is that a tremendous single alphabetical, unclassified list does not serve as a bibliography of the periodicals in any one science, and the specialist, in order to find out what periodicals lie in his field, must toil through a thousand titles more or less foreign to his immediate interest. They would still be useful for verification of a given title or for information as to its history (auspices, editorship, number of volumes, etc.) if full description were given. But this is not the case, e. g., with the *World List*—the entries are very brief and condensed. Furthermore, American students will be embarrassed by the method of entry, which is by "catchword" title rather than by corporate authors or first word of title. However, unsatisfactory as these lists may be as scientific bibliographies, their usefulness as union catalogues can hardly be overestimated. The scholar must know where to find a certain periodical to which he has been referred. The lists of periodicals abstracted or indexed by *Chemical Abstracts*, by *Biological Abstracts*, by the *Psychological Index*, etc., are accompanied by long series of symbols representing names of libraries subscribing to these periodicals. (Cf. also the more general *Union List of Serials* 1151.)

Before passing to the bibliographies of the special sciences we should note the history of science as a topic of importance to all. The references in such books as Sedgwick and Tyler's *Short History of Science* 780 and *The Development of the Sciences*, ed. by Woodruff 783, are valuable for reference and further reading. The most extensive bibliography is the John Crerar Library's *List of Books on the History of Science* 778.

On the other hand, in the sciences in general, the history of the study and retrospective bibliography are a special division of the field rather than matters of such fundamental general importance as in historical and philological studies. The scientists are, on the whole, newer and depend chiefly on journals. In a certain limited sense, a monograph on a minute scientific topic may sometimes trace its bibliography no farther back than to its immediate predecessor.

MATHEMATICS

In mathematics the most important reference and bibliographical work is the *Encyclopédie des sciences mathématiques* 807. The German edition is more nearly completed, but the French edition, so far as published, is later and better in some sections, which have been considerably improved and expanded. For full description see Miller's *Historical Introduction to Mathematical Literature* 809.

Miller is an excellent bibliographical introduction and manual (cf. especially chap. 2, which covers mathematical societies, congresses, periodicals, bibliographies, encyclopædias, tables, etc.; chap. 8, which gives biographies of prominent mathematicians; and the appendix, which gives a brief selected bibliography with critical annotations). It should be supplemented by the use of Müller [810], a similar work in German, which is less readable and interesting in form but perhaps more inclusive in scope and more impartial in treatment. An up-to-date list of mathematical bibliographies projected by the National Research Council seems to have been given up.

For universal bibliographies of mathematics one must go back to works of the early part of the last century, e. g., Rogg's *Handbuch der mathematischen Literatur* [812] (1830) and continuation by Sohncke (1854), although a German mathematician was said by Müller (p. 66) to have prepared, but not published, a list of 150,000 titles, and the Société Mathématique de France in 1894 began a *Répertoire bibliographique* [819] on cards (with some ten entries on each card!) to include all works on mathematics since 1800 and all historical mathematical literature from 1600 on; about 20,000 works had been recorded up to 1914, when the undertaking seems to have been suspended. A recent library catalogue is that of the American Mathematical Society [804], including about 7,000 volumes.

As an example of selective mathematical bibliography, we are listing Wölffling's *Mathematischer Bücherschatz* [814] (cf. Miller, p. 276). As an example of national bibliography of mathematics, cf. Nielsen's *Matematiken i Danmark*, 1801–1908 [811]. D. E. Smith's *Rara arithmetica* [813] illustrates both the rare-book type of special bibliography and the topical bibliography. Another important example of the latter is Dickson's *History of the Theory of Numbers* [806]. For a general history of mathematics, cf. Cajori [805]. Maire's *Pascal savant* [808] illustrates personal bibliography.

The chief emphasis in mathematical bibliography should be laid on current and periodical material. A *Union List of Mathematical Periodicals*, by Smith and Seely, was published in the U. S. Bureau of Education *Bulletin* 1918, no. 9 [821]. The great abstract journal in the field is the *Revue semestrielle des publications mathématiques* [820]. For critical summaries, probably the *Jahrbuch über die Fortschritte der Mathematik* [817] is the most noteworthy; cf. also, however, the annual list in *Acta mathe-*

matica [814.1], the *Bulletin des sciences mathématiques* [818], pt. 2, "Revue des publications académiques et periodiques," the reports on the progress of investigations of special topics published from time to time in the American Mathematical Society's *Bulletin* [815], the notices and lists in the *Bollettino della Unione Matematica Italiana* [822], the *Bibliotheca mathematica* [816] (edited by Eneström, 1884–1915, and "easily the leading historical journal of the world"—Miller), etc.

ASTRONOMY

In astronomy, recent reference works containing bibliographies are the *Hevelius Handbuch für Freunde der Astronomie und kosmischen Physik* [824], and Valentiner's *Handwörterbuch* [830]. For a recent introductory bibliographical work we can cite only Collard's *L'astronomie et les astronomes* [1447], which is a selection with special reference to use by French-speaking students.

The great bibliography of astronomical bibliographies by Houzeau [825] (pub. 1882–89) should be continued and brought up to date, and there is such an undertaking in progress under the auspices of the National Research Council.

As examples of comprehensive astronomical bibliography, we are listing the catalogues of the Royal Astronomical Society [827] and the Brussels Observatoire Royale [823].

Wolf's *Handbuch der Astronomie* [831] is a useful history of the subject, but not very full in references. Society publications of the greatest importance to astronomers are the publications of astronomical observatories—cf. *Les observatoires astronomiques et les astronomes* by Stroobant and others [829] (for later information cf. *Index generalis* [1169]), etc. As examples of more limited topical bibliographies, cf. Müller and Hartwig's *Geschichte und Literatur des Lichtwechsels der . . . veränderlich anerkannten Sterne* [826], the many unpublished American card bibliographies listed by West and Hull [790], etc.

The most extensive periodical bibliography is the *Astronomischer Jahresbericht* [832], which, like other similar exhaustive undertakings, is likely to be a year or two in arrears, and must constantly be brought up to date by the various review journals, e. g., the *Bulletin astronomique* [834] (includes abstracts), the *Astrophysical Journal* [833], etc.

PHYSICS

The chief reference works in physics (including foot-note and chapter bibliographies) are the recent *Handbuch der Physik* [839] (24 vols.) and *Handbuch der Experimentalphysik* [838]. With them should be mentioned great reference works in special divisions of the field, like the *International Critical Tables of Numerical Data, Physics, Chemistry, and Technology* [845], which, when completed, will largely supersede the *Tables annuelles* [849] (bibliography limited chiefly to references to sources of data), the *Handbuch der Radiologie* [840], Kayser's *Handbuch der Spectroscopie* [841], etc.

Among recent topical bibliographies of especial interest may be mentioned the survey of the first ten years' progress of the Bohr theory of atomic physics in *Die Naturwissenschaften* [793], v. 11, no. 27 (July 6, 1923), Lecat's *Bibliographie de la relativité* [842], Mottelay's *Bibliographical History of Electricity and Magnetism* [844], Allen's *Photo-Electricity* [835] (with bibliography), the *Catalogue of the Wheeler Gift Collection* in the American Institute of Electrical Engineers' Library [836]. As an example of more minute topical bibliography in the field of electrical engineering, cf. the National Research Council, Division of Engineering, *Bibliography on Core Losses* [846]. Personal bibliography may be illustrated by Gray's *Bibliography of the Works of Sir Isaac Newton* [837].

Mann's *Histories and Bibliographies of Physics* [843] (1902) is still useful as an introduction, but is otherwise superseded by Darrow's recent comprehensive *Classified List of Published Bibliographies in Physics*, 1910–22 [789].

For current literature the physicist relies in general on the abstract journals *Science Abstracts* [848] and *Physikalische Berichte* [847] (continuation of the older *Fortschritte der Physik* and *Beiblätter zu den Annalen der Physik*). Among government publications, those of the Bureau of Standards [799] are of especial importance.

METEOROLOGY

The U. S. Weather Bureau has published a select retrospective bibliography [855] (1913), including references to earlier, comprehensive lists. Among later works reference should be made to the bibliographies in Milham's *Meteorology* [850], Shaw's *Manual of Meteorology* [852] (including a detailed history of the subject), Sparn's *Bibliografía meteorologica y climatologica de la Republica Argentina* [853], and, for the activities of the U. S. Weather Bureau, Weber's *Weather Bureau* [1099], etc.

The Royal Meteorological Society of London publishes a current *Bibliography of Meteorological Literature* [851]. Cf. also the current list in the U. S. Weather Bureau, *Monthly Weather Review* [854].

CHEMISTRY

The best introduction to chemical literature and its use is Crane and Patterson's *Guide* [858]; another useful text-book of bibliography is Sparks's *Chemical Literature and Its Use* [862]; and two bibliographies of chemical bibliographies were published within a few months of each other—Sohon's *Reference List of Bibliographies* [861] and West and Berolzheimer's *Bibliography of Bibliographies* [789].

The *Bibliotheca chemica* of James Young, catalogued by Ferguson [864], is an extensive list of early works on chemistry and alchemy. For the history of the subject see also Stillman's *Story of Early Chemistry* [863]. We shall not duplicate references to topical bibliographies which may be found in the manuals mentioned above, except to mention the outstanding classical reference works, with bibliographies, in large divisions of the subject: Gmelin-Kraut's *Handbuch der anorganischen Chemie* [859], Beilstein's *Handbuch der organischen Chemie* [857], and Jellinek's *Lehrbuch der physikalischen Chemie* [860].

The most important periodical is *Chemical Abstracts*, published by the American Chemical Society [866] (1907–). Earlier, as well as later, literature may be found in the abstracts in the *Journal of the Chemical Society*, London [865.1] (1848–), and the German *Chemisches Zentralblatt* [868] (1830–). For recent German chemical books, in particular, cf. also *Bibliographia chi-*

mica [865]. There are also journals devoted to every important special branch of chemical studies, e. g., the annual *Literatur-Register der organischen Chemie* [869] (several years in arrears), the *Journal* of the Society of Chemical Industry (since 1924 its abstracts have been combined with those of the Chemical Society *Journal* in *British Chemical Abstracts* [865.1]).

The list (in *Chem. Abstr.*, v. 16) of periodicals abstracted (1,010 titles) is valuable as a bibliography of both chemical and other scientific periodicals of interest to chemists (though a fuller description would be desirable, e. g., in matters of scope, editorship, collation, etc.) and also as a union catalogue, indicating in what libraries files of each periodical are available.

Add to this list West and Hull's *List of Manuscript Bibliographies* [790] and you have probably the most up-to-date and workable bibliographical apparatus available in any field of study.

NATURAL SCIENCES

The natural sciences, geology, botany, and zoology, need a more extensive and elaborate bibliographical organization than do the mathematical sciences. Their work is not confined to laboratory, study, or observatory, nor even to trained observers. Wherever flora and fauna grow, or ever did grow—or never can grow—material exists for the geologist, zoologist, and botanist. And the publications of the most obscure "local-history" societies may contain observations and studies of local natural phenomena as well as of local history, archæology, etc.

There is no introductory bibliographical manual. Agassiz attempted a universal bibliography in 1848–54 [871]. Good recent examples are the catalogues of the British Museum, Natural History Library [872], and the Linnæan Society [873]. A recent extensive local bibliography is Meisel's *Bibliography of American Natural History* [874]. (Cf. also titles listed under general science.)

GEOLOGY

The American student's works of first reference, including more or less bibliography, in geology, mineralogy, and palæontology, are the text-books by Geikie [878], Dana [876], and Zittel [884].

A bibliography of geological bibliographies was published (1896) by de Margerie [879] with the co-operation of geologists in several countries, recently supplemented by Mathews's *Catalogue of Published Bibliographies in Geology*, 1896–1920 [789] (less complete than de Margerie for foreign literature). These two together list over 7,500 bibliographies of works concerned with the geology of various countries or localities, various periods, and various substances. For unpublished MS. bibliographies cf. Little [790].

Among the bibliographies of local geology published since 1920, we may note the *Geologic Literature on North America* (1785–1918) [896], compiled by Nickles from earlier similar *Bulletins* of the U. S. Geological Survey (Darton, Weeks, and Nickles); Sullivan's *Catalogue of Geological Maps of South America* [186]; Sparn's *Bibliografía de la geología . . . de la Republica Argentina* [883].

On economic geology, cf. Emmons's *Principles* [877] (chapter bibliographies). For other examples of topical bibliography, cf. Crane's *Index of Mining Engineering Literature* [875], Redwood's *Petroleum* [882] (at end of v. 3), etc.

Since the suspension of the *International Catalogue* [786] there is no exhaustive current bibliography, and the student must pay closer attention to several general and national lists and reviews, especially: the current catalogue of the Geological Society (London) [888], the French Geological Society's *Bibliographie des sciences géologiques* [894], the *Förhandlingar* of the Geologiske Foreningens i Stockholm [889], the U. S. Geological Survey *Bulletin* [896], the *Geologisches Zentralblatt* [890] (probably the most comprehensive of the journals), etc.

Economic Geology [885] gives quarterly lists of recent literature in its field. Current mineralogical literature is well covered in *Mineralogical Abstracts* [893] (issued as a supplement to *Mineralogical Magazine*); cf. also *Journal* of the Institute of Metals [891], *Journal* of the Iron and Steel Institute [892.1], etc. Palæontology is also included in the scope of the "Zurich Index" [912] and *Biological Abstracts* [911].

Recognizing the large proportion of geological and mineralogical work done under government auspices, the student must give constant attention to lists of government publications and to government serial publications themselves (see chap. 9). We have already referred to the bibliography of North American Geology, current in the U. S. G. S. *Bulletin*, and other more special bibliographies could be cited from it, e. g., the *Bibliography of Petroleum* (1918, no. 149). Cf. also the *Service Monographs* 1099 published by the Institute for Government Research, —no. 1, on the work of the U. S. G. S., and no. 3, for the U. S. Bureau of Mines—and the official lists of publications issued by these departments and by the U. S. Superintendent of Documents 1110. There are similar lists published by the corresponding governmental bureaus and societies in other countries. A list of these with their serial publications may be found in the *Geologen-Kalender* 887.

Geological bibliographies of smaller countries, as well as general and topical bibliographies sometimes appear in the proceedings of international congresses 892—e. g., in the *Compte rendu* of the ninth congress, Vienna, 1903, there is a bibliographical "Übersicht" covering the Near East.

BIOLOGY

The chief occupation of the biologists up to the nineteenth century has been described as a continuation of Adam and Eve's work of naming the animals. (In fact, somewhere in the Biblical Apocrypha there is a tradition of a book written by Adam, "De nominibus animalium"!) The student may therefore be referred first to the *Index animalium* (ed. by Sherborn 903), which gives the name of each genus and species and of the person who first described it. Other reference works of bibliographical usefulness are: *Treatise on Zoology*, edited by Lankester 901, Bronn's *Klassen und Ordnungen des Tier-Reichs* 897, *Handbuch der Biochemie*, edited by Oppenheimer 899.1, etc.

The last serious attempt at a complete bibliography was that of Agassiz 871. Later material is to be found in several periodicals: the *Bibliotheca zoologica* 909, a classified bibliography, each issue of which covered a series of years; the *Zoologischer Jahresbericht* 916, which was the first of the zoological abstract journals (though, like the other *Jahresberichte* mentioned in these chapters, differing in form from the recent abstract journals). The *Zoological Record* 915, financed by the London Zoological Gardens, has included a pretty complete current bibliography for the last sixty years. In the years 1905 ff. it was published both separately and in the *International Catalogue*, keeping its organization intact, so that it was able to continue after the lapse of the *International Catalogue.* The *Année biologique* 905 is devoted to bibliographies and reviews. Cf. also *Bibliographia zoologica*, published with *Zoologischer Anzeiger* 908.

One of the most remarkable bibliographical undertakings in any field is that of the Concilium Bibliographicum, founded by Herbert Hamilton Field at Zurich in 1895 and often referred to as the *Zurich Index.* This attempts to meet the need of both prompt periodical and complete retrospective bibliography by printing and distributing cards for all books and articles on zoology immediately after their publication, the cards then forming, as they accumulate and are filed together, a permanent complete bibliography. The promptness and thoroughness of the service is extraordinary; in 1912 a careful study showed that the *Zurich Index* was much more nearly complete than the zoological section of the *International Catalogue.* Since the death of its founder and head, the *Zurich Index* has been carried on under a subsidy of the Rockefeller Foundation.

It was proposed that this be combined with a number of specialized abstract journals, in *Biological Abstracts* 911, also financed in part by a subsidy from the Rockefeller Foundation (cf. Tweedell 798). Although the first issue of this latter announces the absorption only of *Abstracts of Bacteriology* and *Botanical Abstracts*, its scope is, nevertheless, "a comprehensive abstracting and indexing journal of the world's literature in theoretical and applied biology, exclusive of clinical medicine," including plant and animal physiology and pathology, pharmacology, bacteriology, agronomy, horticulture, forestry, palæobotany, palæozoology, systematic botany and zoology, etc. This publication may be supplemented by use of the *Berichte über die wissenschaftliche Biologie* 906, which is made up of more or less detailed reviews and abstracts of both books and articles.

Another periodical card bibliography of recent origin is that of the Wistar Institute *Bibliographic Service* 914, which has taken up this method for the articles published in its seven periodicals and several other journals; the cards containing abstracts as well as authors and titles of the articles (also published in book form). Another bibliographical innovation is their proposal to issue the articles in separate form but serially, so that the subscriber may either bind them up as a periodical or file them as separate pamphlets.

Bibliographies on special topics in biology and zoology are a tempting field for enumeration, since there are many of them, and there is no bibliography of bibliographies nor bibliographic manual, but we must be content with the mention of a few important examples: Dean's *Bibliography of Fishes* 898, Holmes's *Bibliography of Eugenics* 900, Gage's *Microscope* 899 (chapter bibliographies and a concluding general bibliography)—cf. also Stehli 904—and, as periodicals of special topical scope, *Bibliographia genetica* 907, *Biologia generalis* 910 (includes abstracts on problems of "general biology"), and the *Journal of the Royal Microscopical Society* 913, which includes a "summary of current researches relating to zoology and botany . . . microscopy, etc."

BOTANY, AGRICULTURE, FORESTRY

We have a bibliography of *Bibliographies of Botany*, by Bay 917, published by the Association Internationale des Botanistes; cf. also his article *Contributions to the Theory and History of Botanical Bibliography* (in Bibl. Soc. of Amer. *Papers* 1 (1904–05)). The greatest universal bibliography of botany is the old Pritzel's *Thesaurus* 923, with supplement by Jackson 921. There is an extensive general bibliography in *Strasburger's Text-Book of Botany* 929. Biobibliography may be illustrated by Britten's *Biographical Index of British and Irish Botanists* 918. Krok's *Bibliotheca botanica suecana* 922 is a recent example of national botanical bibliography.

On the history of botany cf. Green's *History of Botany*, *1860–1900* [919] (with bibliography), and Rohde on old English herbals and gardening books [925-26]. Among other topical bibliographies we may mention that in Warming's *Œcology of Plants* [931].

A great deal of botanical and other scientific material is included in horticultural, agricultural, and forestry publications, and we list, therefore, a few examples of bibliographies in these subjects: Güntz's biobibliographical *Handbuch der landwirtschaftlichen Literatur* [920], Royal Agricultural Society's Library *Catalogue* [928], Aslin's *Catalogue of the Printed Books on Agriculture Published Between* 1471 *and* 1840 [927], Unwin's *International Forest Bibliography* [930], Rehder's *Bradley Bibliography . . . of the Woody Plants* [924].

The botanical student should thoroughly familiarize himself with the publications of various governmental bureaus, particularly with those of the U. S. Department of Agriculture, the Bureau of Plant Industry, etc. Cf. Beal and Ogden's *Contributions of the U. S. Department of Agriculture to the Bibliography of Science* [774],* Ogden and Hawks's *List of Manuscript Bibliographies and Indexes in the . . . Department* (*Bibliographical Contributions* [941], no. 11), the Department's *Bulletin* [940], and its *Card Index to the Publications* [939] (which is duplicated in many other libraries in the United States).

Botanical Abstracts has been absorbed in *Biological Abstracts* [911]. With this, *Just's botanischer Jahresbericht* [935] should be followed. Current list and reviews are included in the *Bulletin de la société botanique de la France* [937], *Botanisches Centralblatt* [933], *Botanisk Tidskrift* [934] (which contains Warming's bibliography of Danish botanical literature), *Bulletin of the Torrey Botanical Club* [938] (including a monthly bibliography since 1894), etc.

Examples of more specialized periodicals important for bibliography are: *Review of Applied Mycology* [936], the *Agricultural Index* [932] (monthly, with quarterly and annual cumulations), the classified digests in the *Experiment Stations Record* [943] (pub. by the U. S. Department of Agriculture), etc. (cf. *List of* [5586]

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* Extensive and valuable bibliographies are even published in its *Farmers' Bulletin.*

Serials Currently Received in the Library of the U. S. Department of Agriculture 942).

PHYSIOLOGY AND MEDICINE

For the physiological and medical sciences see first Garrison's *Introduction to the History of Medicine, with . . . Bibliographic Data* 952. A standard text-book of physiology with extensive bibliography is Bayliss's *Principles of General Physiology* 946; and larger reference works like Richet's *Dictionnaire de physiologie* 962 and the *Handbuch der normalen und pathologischen Physiologie* 956 (by Bethe and others) include elaborate topical bibliographies.

There are several books and articles designed to serve as manuals or bibliographies of medical bibliography, e. g., Garrison's *Uses of Medical Bibliography* 51, Frankenberger's *How to Consult Medical Literature* 951, Hahn's *Essai de bibliographie médicale* 954, etc. As an encyclopædic reference work, cf. the old but still indispensable *Dictionnaire encyclopédique des sciences médicales* 950 (in 100 v.). The most exhaustive bibliography of medical sciences is the U. S. Surgeon-General's Office *Index Catalogue* 964. Library catalogues in general fall short of being exhaustive bibliographies, but this catalogue includes not merely books, but also an immense amount of pamphlet material and periodical articles. For an older comprehensive bibliography, cf. Ploucquet 960.

For biobibliography of medicine cf. Callisen's *Medizinisches Schriftsteller-Lexicon* 949 (covering 1750–1825). Personal bibliography is very well illustrated by Blogg's *Classified and Annotated Bibliography of the Publications of Sir William Osler* 947. Bibliographies of the various special branches and special topics of the medical sciences might be omitted here, as of interest chiefly to technical and professional students. Reference should be made, however, to a few indispensable works of more or less general scientific interest: the extensive bibliographies in Buchanan's *General Systematic Bacteriology* 948, *Handbuch der pathogenen Mikroorganismen* 957, Keibel and Mall's *Manual of Human Embryology* 959, Barker's *Endocrinology and Metabolism* 945 (v. 5, "Bibliography"), Helmholtz's *Treatise on Phys-*

iological Optics [958], Nothnagel and Ortner's *Spezielle Pathologie und Therapie* [963], Halban and Seitz's *Biologie und Pathologie des Weibes* [955], Abt's *Pediatrics* [944], Graefe and Saemisch's *Handbuch der gesamten Augenheilkunde* [953], etc.

The standard current bibliography is the *Quarterly Cumulative Index Medicus* [972] (union of the older *Index Medicus* and *Quarterly Cumulative Index to Current Medical Literature*). *Physiological Abstracts* [971.8] was among the periodicals which it was planned to continue in *Biological Abstracts*. Medical abstracts form the content of the monthly *International Abstracts of Surgery* [973]. Cf. also *Berichte über die gesamte Physiologie und experimentelle Pharmakologie* [967], *Ergebnisse der Physiologie* [971], *British Medical Journal* [968], *Journal of the American Medical Association* [965]; and more specialized periodicals like *Anatomischer Anzeiger* [966], *Endocrinology* [969], *Ergebnisse der allgemeinen Pathologie und pathologischen Anatomie* [970], and the numerous other *Berichte*, *Central-* and *Zentralblätter*, *Ergebnisse*, *Jahresberichte*, etc.

TECHNOLOGY

In general, the bibliographies mentioned in the earlier part of this chapter include both pure and applied science. We shall, accordingly, limit this paragraph to the most cursory mention of a few specifically technological bibliographies—engineering of various sorts, domestic science, military and naval science, etc.

We should first mention again Frost's *Good Engineering Literature* [50] as a manual; as reference works, the *Handbuch der Ingenieurwissenschaften* [976]; and Lueger's *Lexicon der gesammten Technik* [976.5]; a few topical bibliographies, e. g., the John Crerar Library's *List of Books on the History of Industry* [302], that in Mead's *Contracts and Specifications* [977], the U. S. Advisory Committee for Aeronautics' *Bibliography of Aeronautics* [986], Crane's *Index of Mining Engineering Literature* [875], Quartermaster Association, Book Department, *Descriptive Catalogue of Selected Military Books* [978]; and, among a wealth of periodicals, *Industrial Arts Index* [981], *Technical Book Review Index* [984] (issued by the Technology Department of the Carnegie Library of Pittsburgh), *Engineering Index* [980] (now a weekly card index and abstract service, cumulated annually in book form), etc. (Cf. Pittsburgh, Carnegie Library's list of *Technical Indexes* [983] and the N. Y. Engineering Societies Library's *Catalogue of Technical Periodicals* [982].) As an example of unpublished bibliographies available in libraries, cf. Mann [69] (Engineering Societies Library, N. Y.).

CHAPTER VII

LIBRARY SCIENCE

AIDS TO USE

The general student's interest in libraries is, for the most part, purely practical. He wants to get something, and it would suit his convenience best if he could simply ask for it and have it handed over the counter, or could have the stock displayed for his selection, like a line of dry-goods or cigars. He can get some such service as this in bookstores, with the great difference, of course, that there are many more brands of books than of cigars, and the customer is much less easily satisfied with "something just as good." Certainly the parallel sometimes drawn between libraries and business enterprises does not extend below a certain few outward appearances and methods. Even if libraries were financed liberally enough to be staffed on the same scale as large department stores, the material differs both in quantity and kind. Instead of large numbers of a comparatively short list of commodities, a library deals in perhaps only one copy each of half a million or a million different volumes. And, instead of comparatively simple standard specifications of manufacture, authorship shows the utmost variety in kind, quality, and suitability. No mere clerk can know books; it requires a professional scholar—if not a special professional scholar for each special branch of learning. You may note the increasing number of specialists on library staffs, particularly in universities, and you will find in Learned [1006] a very interesting and stimulating account of developments of specialized service in public libraries.

You may also note how much individual assistance the modern American library renders through its general reference department, information desk, assistants assigned to "floor duty," etc.—even to the general reader who doesn't know what he wants and may ask some such question as "What books have you got?" But, as a matter of fact, the more service rendered, the greater is the increase in quantity and variety of demand, so that the library is faced with constantly increasing stock, staff, and "overhead," without any accompanying "cash sales" or "good credits."

The efficient student will therefore take pains to "learn something of the business" for his own purposes. Users of the library frequently make one or the other false assumption—that library methods are so simple as to require no study, or that they are hopelessly technical and complicated. The information desk, which some of the larger libraries have installed, performs a most useful function in orienting the visitor as regards both locations of things and methods of procedure, both by word of mouth and by the dispensing of printed aids and guides to the use of the library. Many libraries lacking special information desks still have their printed rules, aids, histories, reports, etc., and members of circulation or reference department designated to introduce, aid, and instruct in the use of the library. Many educational institutions offer more formal instruction at various stages of the student's course. (A course of lectures designed for graduate students is the origin of this book, and our first chapter calls attention to similar works designed for younger students in school and college.)

The serious student will make full use of these helps. The present chapter attempts little more than a statement of some general theories of library economy and some typical problems which library rules and methods are designed to solve. It does not, cannot constitute a complete introduction to solutions of general and local library problems as worked out in any one library. Not only does the plan of the library building vary according to location and purpose and scope of the institution, but there is considerable variety in organization and in all sorts of details of method. The "A. L. A." (American Library Association), *Survey of Libraries in the United States* [988], says of the organization, "the less usual departments show so many variations of nomenclature and of functions, and so many combinations, that we can do no better than to present the outline of departmental organization reported by several libraries, by way of illustration"; and, again, speaking of college and university libraries: "Departments of twenty-seven different names are reported by . . . thirty-one libraries." Four departments, however (cataloguing, reference, circulation, and order) "have a high enough representation to permit them, perhaps, to be classed as fundamental or nearly universal."

CIRCULATION DEPARTMENT

The frequent description of the circulation department as the "heart of the library" is perhaps justified by the fact that it is here that the library "delivers the goods" (e. g., the total circulation of libraries under the New York Board of Education in 1924–25 was over 8,500,000.—*Library Journal*, Feb. 15, 1927). The desk assistant with whom the borrower first comes in contact may be mistaken for the librarian by a borrower unaware of the size and specialized organization of the staffs of large libraries. But the student who "knows the ropes" will not be led to underestimate the help he may get from the library because, for example, of some vague or incorrect reply to a reference question by janitor or page. There may or may not be a general information division in the circulation department, but, in any case, the assistant busily engaged in charging and discharging borrowed books cannot fairly be held responsible for answers to miscellaneous inquiries, and should generally refer the inquirer to the information desk or the reference department.

The work of the circulation department proper begins when a card ("call-slip") is handed in by the borrower, requesting a certain book, by call number, author, and title, although not infrequently, in practice, assistance has to be given in finding this information in the catalogue—or in copying it correctly! After the book has been "paged" from the shelves, the circulation records are the chief concern of the department. The catalogue is a guide to the books in the library only so long as they are in place on the shelves. The circulation record is primarily necessary in order to make books temporarily out of their places available, showing (1) the whereabouts of every book not in its regular place on the shelves, (2) what books are charged to every borrower, (3) the date on which books "charged out" are due to be returned and available for further use, and (4) what books are due to be returned on a given date. All this involves a triple-entry card system—under borrower, call number of book, and date.

A so-called single-entry system is almost universal in public libraries. "The Newark charging system, or some modification of it, is used in more than 86 per cent of the public libraries reporting. In most of the others the Browne system, or some modification, is used" (A. L. A. *Survey* [988], v. 2). In the Browne system each book has a "book-card," inserted in a pocket inside the cover, and two or more separate pockets for each borrower (according to the number of loans permitted to each individual). When a book is loaned, the book-card is inserted in one of the separate pockets and the pocket is filed by date. The Newark system substitutes a borrower's card for the separate-pocket system; this card is retained by the borrower and must be presented every time a book is borrowed or returned. A recent development in routine efficiency is the recording, on the book-card, of borrower's name or number and of the date, in a single process, by means of the Dickman Book Charger.

These systems really serve the same purposes as a double-entry system, since the book-cards are filed so as to indicate what books are due for return on any date, and the Browne pockets and the Newark borrower's card show what books each reader has borrowed. But the reader's request for a loan is very often met with the reply "not on the shelf." Supposedly, then, the book is already charged out, but there are, of course, other reasons for a book's not being in place—the paging and shelving assistants are often the least expert and least responsible members of the staff, and readers who are admitted to the stack often show a strong inclination to put a book back on the shelf in the first vacant space that meets the eye. The reader may ask to have the book "searched," or "reserved," for him when it returns from circulation, but this will often involve reading through the charge records of the preceding two weeks or month.

In college libraries, faculty loans, for example, are often of a year's duration or for an indefinite period; and, on the other hand, a book in circulation is not necessarily unavailable, but may be "called in" fairly promptly. Our students therefore will probably be most familiar with the triple-entry charging system and will find it something of an effort to adjust themselves to the public-library methods.

Nothing is more discouraging to the serious student than the rules which seem to restrict his use of the library. The hours of library service have grown from one or two hours on one or two days a week to ten, twelve, or sixteen hours daily, but the student "cramming" for examination or just at a critical point in his research study may resent interruption at any hour of the day or night—especially if the interruption comes in the very "official" manner sometimes assumed by library employees or in the police manner which the night-watchman dons with his badge. But the student should not forget that his case is but one of a multitude of special problems of detail that make library administration such a complicated business, and that the financial cost to the library of individual exceptions to established rules and routine is quite out of proportion to ordinary costs. On the other hand, library administration grows more and more liberal as users demonstrate an understanding of the system and a willingness to co-operate, to "play the game." In many universities members of the faculty and graduate students have keys to seminary rooms or other sections of the library and may go and come as they choose. Such privileges, like that of free access to the "book stacks," are largely conditioned, further, on the size of the clientele and the possibility of knowing them more or less personally.

Limitation of the number of books which may be borrowed at one time probably works little hardship in practice. Two or even one may be the limit for popular books of fiction, but special needs for serious works generally receive special consideration, and in compact college communities there is frequently no limit at all. The limited term of loan and the practice of fines on "overdue" books are among the most troublesome of the regulations. The regulations are clear, the book-pocket bears a slip stamped with the "date due," and yet the borrower forgets. But the rules are designed, not to work hardship to the man who has the book, but to avoid hardship for the man who wants it. The fine is not a money-making but a mnemonic device, to help the borrower remember the "date due." The appreciative borrower will not wait for an "overdue notice" before returning a book with which he has finished, nor will he protest at failure to receive such notice, since the sending of it is not obligatory upon the library, but rather a matter of courtesy both to the present borrower and to his successor.

Limitation of time is recognized as an unfortunate necessity, and libraries are attempting to reduce the inconvenience by various lengthenings of the term: in general; in case of books in less constant demand; at special seasons (especially summer vacation); and for certain professional groups whose use of books may be more intensive and prolonged. The reader should, therefore, be more helped than perplexed by the variety of terms of loan practised in some libraries: indefinite loan, automatically renewed loan, one-month loan, two-weeks (the normal) loan, seven-day books, overnight books, etc.—even two-hour books—and, of course, reference books, rare books, big books (e. g., "elephant folios"), etc., which ordinarily do not circulate at all. (For technique of circulation work cf. Flexner [989].)

Other library regulations are concerned merely with good manners. Still others which should be superfluous are concerned with the use and handling of books. Not enough emphasis, except among bibliophiles, is laid on the care in taking a book from the shelf, in opening freshly bound books, etc. Mutilation of books is a misdemeanor in nearly all States of the Union. The federal statute for the District of Columbia is typical: "Any person who shall steal, wrongfully deface, injure, mutilate, tear, or destroy any book, pamphlet, or manuscript, or any portion thereof . . . shall be guilty of a misdemeanor, and, on conviction thereof, shall, when the offense is not otherwise punishable by some statute of the United States, be punished by a fine of not less than ten dollars, nor more than one thousand dollars, and by imprisonment for not less than one month nor more than one year, or both, for every such offense."

The minor mutilation of a book, by making notes or intended corrections, is perhaps more asinine than criminal—at any rate, it is more often met with in academic circles. And yet we have marvelled at the curious code of morals of a graduate student who once asked to be allowed to buy from us a certain book which contained his notes for his doctor's thesis, and at a professor who had his students compile material for him by underlining passages in library books! (Other offenses in the use of books are charmingly and quaintly told in Richard de Bury's *Philobiblon* ^{992}, a fifteenth-century book which still finds readers.)

CATALOGUE DEPARTMENT

If the circulation department is the "heart of the library," the catalogue may be described as the "key to the library." We shall first examine this finished work of the catalogue department and then point out some of the problems and theories which are involved. Books may be recorded under author (always), subject (nearly always except poetry, fiction, etc.), and title, editor, translator, etc. (sometimes, according to circumstances). These card entries are generally filed together in one alphabet. The library alphabet is not, however, "as simple as A–B–C," and a number of arbitrary rules are necessary. The first peculiarity we may describe as an alphabetization word by word rather than letter by letter; for example, you will generally find that all the entries beginning with the word *new* come before entries beginning *newt* (e. g., *New York* before *Newton*), whereas in an encyclopædia or a telephone directory you will often find a strictly alphabetical arrangement.

The second exception to alphabetical arrangement is due to the fact that a great many authors have the same name. There are a great many J. Smiths in the world. You can distinguish some of them alphabetically by supplying the missing portions of their full names, but many times you have to complete their identity by supplying the dates of their lives, filing them on a chronological principle.

Authors with only one name—such as saints, popes, kings, emperors, dukes, some ancient authors, and the like—are usually arranged first in an arbitrary order (i. e., as listed here). After that, they are alphabetized—e. g., in case of kings, by the countries of which they were rulers (Henry, King of England, files ahead of Henry, King of France)—and, finally, the King Henrys of a given country are arranged chronologically (Henry VII, Henry VIII, etc.). Some libraries, however, alphabet, e. g., all the Johns by their titles (duke, earl, king, pope, etc.) and then subarrange by country and chronologically.

Certain places which appear as author (like New York City as an official corporation) have further complications, since each department or division of its government may also be an author. The corporation as a whole precedes its subdivisions (e. g., *New York* standing alone files ahead of *New York. Board of Aldermen*). This perhaps seems too obvious for comment, but it is a fact that not all users of the library know that they need not read through all the New York cards to find a city financial report. Again, some libraries may appear to give almost a full and complete statement of the whole city organization in an author heading. Your city may have a council, this council a committee, and this committee a subcommittee, or perhaps even a library; and the catalogue cards will be headed and filed accordingly: *City; City. Council; City. Council. Committee on —; City. Council. Committee on —. Subcommittee*; etc.

Authors have books written about them, and so the same entry will occur both as author and as subject; and, again, a place as author, or a title entry will have the same name as a personal author. For instance, you might have *Orange, William*, as author and subject; *Orange, New Jersey*, as author and subject; *Orange*, the fruit, as subject; a title reading *Orange and its environs*; the name of a corporation, *Orange Belt Line Railway Company*; and so on. The rule of thumb applied in most libraries is "person, place, thing"; or "person, place, subject, title."

Where cities and other localities have the same name, the order is city, county, State. When the same place changes its form of government, you find a chronological order (e. g., *New Jersey* (*Province*) and *New Jersey* (*State*)).

Within the last few years many university libraries have been endeavoring to approximate more closely a strict alphabetical order; and you will find in one file such entries as: *Iowa agricultural experiment station, Ames* (corporate name beginning Iowa); *Iowa. Highway Commission* (department of the State government); and *Iowa Historical Record* (title entry).

For another example, a great many corporations begin with *New York*. In many cases it is not known by the majority of people whether some such organizations are officially connected with the city or simply have been incorporated under a name beginning with *New York*. These may be filed in one series, since they are either officially or geographically in New York City. There are others, however, which have to be put in a third file along with title entries, e. g., *New York, New Haven and Hartford Railroad.*

Under any author, the secondary arrangement of cards under that author also presents problems. Many libraries distinguish the author as author from the author as editor, translator, illustrator, publisher, etc.—in two files or series.

The arrangement of titles of books under an author is likewise subject to another general arbitrary rule of thumb, "collected works first." All different editions of the collected works of an author are then arranged chronologically. After that come the individual works alphabetically, the different editions of each of these works being subarranged chronologically. Where the wording of the title-page varies in different editions of the same work, it has to be disregarded.

Practically every large library has its own minor peculiarities of catalogue arrangement which must be learned if the catalogue is to be efficiently utilized (whether the exceptions are due to conviction or to lack of means to change to a better system). But the student who realizes that filing rules are consistently followed will readily observe and understand the system used in any particular library.

The *dictionary catalogue* is a combined catalogue. It was formerly the custom to have two separate catalogues—the subject catalogue by itself. Another older practice had, instead of the subject catalogue, a classed catalogue, or an *alphabetico-classed* catalogue (in which the classes were arranged, not in the order of their scientific relations or in the order of their symbols, but alphabetically by their names). We still have, of course, in catalogue departments what is known as a *shelf list* (arranged by the "call numbers"—i. e., shelf-location marks—of each book). This constitutes a classed catalogue, where the books are all in one collection (and are, therefore, without exception, arranged on the shelves all in one series in classification order). In practice, however, no library has its books entirely in one collection, and the shelf list is divided according to special locations and special collections.

Other additional catalogues are the *official catalogue* (author or dictionary) filed in the catalogue department, and the departmental catalogues (sometimes author, sometimes author and subject, sometimes dictionary). The Library of Congress, for example, has something like 100 different catalogues.

The card catalogue is a modern invention. The oldest catalogues were in manuscript (ledger style). The next were printed. Whether these were arranged by classes (a classed catalogue) or alphabetically in an author catalogue, new accessions made them out of date even before the printing was completed. Nevertheless the obvious advantages of displaying a large number of titles in compact and convenient form and of duplicating the catalogue for consultation in any number of different places has led many libraries to print, from time to time, partial catalogues of books on various subjects, "bulletins" of new accessions, and the like. (Cf. for example *Bulletins* of the New York, Boston, and Providence public libraries, the Bodleian *Quarterly Record*, etc.) Various suggestions have been made of means by which a printed catalogue could be kept up to date. As early as 1850, printing by stereotype titles was advocated, and if the linotype had been in use then, it is possible that a system like that now used for the cumulated *U. S. Catalog*[1206] and for the *Reader's Guide*[1161] might have been worked out for library catalogues—a filing of linotype slugs instead of cards. The title-a-line *Classed* and *Alphabetical* catalogues of Princeton University Library (1920–21) were experiments in this direction.

Another form of catalogue is the sheaf catalogue, a device similar to the loose-leaf note-book. As a book, or series of books, it is easier to handle, and rewriting or reprinting is not so frequently necessary, since new leaves may be interpolated and the copying of a single page at a time is not such a great matter. Also, as it is in book form, with several titles to a page, it is, like the printed catalogue, more economical of space and can be shelved, etc. It is in use in a number of European libraries, but its use in America is only occasional and only for shelf list.

In America the card catalogue has developed so extensively that it will probably not be superseded unless—as is quite possible—it falls of its own weight. Cards—whether one or many for each book—may be kept up-to-date and in order, constantly and promptly, and permit of indefinite interpolation. Their chief disadvantages are the space they take up (cf. U. S. Library of Congress *Report*, 1925), the slowness of consultation as compared with a printed book, and the expense of duplication for use in different parts of the library or outside.

For the detailed principles and rules of cataloguing, the student will have to consult such works as Quinn [1011], Bishop [993], Mann [989] (in preparation), Fellows [1003], the *Catalog Rules* [995], and Cutter's *Rules* [997]. The first two are more theoretical and readable, the last three practical and detailed. Our purpose here is to call the student's attention to the different items of information contained on the catalogue card (the use of which saves the reader much unnecessary work with the books themselves) and some of the problems involved in their composition. The modern library catalogue in the full form is a bibliography, whereas the two used to be distinguished "in that a bibliography is a book of reference where information may be obtained which will often save the consulter the necessity of searching for the book itself, while a catalogue is primarily intended as a help to the finding of the books" (Wheatley, in Bibl. Soc. *Transactions* 1 (1892–93)).

The catalogue entry should contain: (1) Call number, which consists of symbols indicating respectively location, class, author, work, date, and edition (identical with those put on the book itself to bring it in its proper place on the shelves). (2) Author. ("Main entry" is regularly made under author.) (3) Title. (4) Imprint. (5) Collation. (6) Series or "analytical" note. (7) Notes (of physical description, of contents, literary or critical, etc.). (8) "Tracing," or record of subject entries and added entries for author, editor, etc.

The question "who is the author?" is not as simple as it sounds. There are many books whose authorship we may never know—anonymous and pseudonymous works. If the author of the book is anonymous (i. e., "without name"), the main entry is under title, although we must confess a friendly feeling for the older practice of using "Anon." as entry word. There was at one period an epidemic of books signed "by a lady" (a list of them has been compiled under the title *Aggravating Ladies* [1082]). These, by the way, are anonymous, not pseudonymous—properly speaking, it takes a proper noun to constitute even a false name, although we are not sure but the "Gentleman with a duster" might constitute one. Pseudonyms which have never been "unmasked" are, of course, used as main entry. On the other hand, if we know the author's real name, the entry under the pseudonym is generally merely a reference card. But the letter of the law is not always practicable. "Mark Twain" is even yet probably better known than Samuel Clemens; Uljanov and Brohnstein are generally known as Lenin and Trotzky (although some libraries prefer to follow the rule); Joseph Conrad is much more famous than Joseph Conrad Theodore Korzeniowski. Thus there are many exceptions to the rule, in favor of the "better-known" name.* In any case, a general reference card must be made under the name not chosen.

If you know who the author was, you still may not know the correct form or the full form of his name. The title-pages of books are far from complete or correct, even in this detail. On the other hand, a *nom de plume* may be famous, and so preferred as the better-known form. We remember one disappointment when, after a long and finally successful search, we identified one Daniel van Papenbroeck, only to be rewarded by the criticism: "I suppose that must have been his real name, but nobody knows of him otherwise than as 'Papebrochius.'" So the Latinized authors of the sixteenth and seventeenth centuries, like the "aggravating ladies" of the eighteenth, are puzzles for the cataloguer, who may appear now needlessly recondite and at another time strangely ignorant, e. g., to students in the field of Papebrochius.

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* There should be more. We refer several times to De Bury's *Philobiblon*, but you should consult the catalogue under *Aungerville, Richard, known as Richard de Bury.*

Then, again, authors change their names—women get married and Englishmen become barons of some place, and then earls of some other place. American cataloguers try to follow them in their changes unless they continue to write under their old names or, again, are better known by their old names. English conservatism is illustrated by a contrary practice, preferring the nobleman's own family name once and forever (some of them have the same preference as regards women). This practice certainly saves labor for the cataloguer.

In addition to completing the author's name, where perhaps the title-page gives only initials, not infrequently the dates of his life must also be added for correct filing in the library catalogue. One never can tell whether or when a name is likely to be duplicated. Mark Twain had to make a change in the first edition of his *Gilded Age* when it was partly printed, because one of the characters was named Col. Eschol Sellers, and there happened to be a real Col. Eschol Sellers who objected to the use of his name.

After authors of no name, false name, or uncertain form of name, we should give some attention to authors who are not even individual persons. We saw through the press an annotated catalogue of an exhibition of illuminated manuscripts, but the pamphlet might be catalogued under any one of three other authors: the professor whom the preface stated to be responsible for the selection and annotation of the exhibition, the actual owner of the manuscripts, which were only a "deposit" collection in the library, and the library by whom we were engaged and paid to do the work of installing and editing. The last-named is the correct main entry, the others might be recognized in added entries.

Then there are official documents of all sorts written for corporate bodies: the government and all its departments and bureaus, all sorts of societies—learned, social, or what-not—institutions like colleges, museums, etc., business corporations, etc. All these are authors. Many of these corporate authors are better known by something else than their official name, or by that name in other than official order. It is customary, for example, to enter institutions like schools and churches under their places of location, unless their names begin with a distinctive word (proper noun or adjective). It is customary in some European libraries to enter these under title rather than corporate author.

The entry *U. S. Laws, statutes, etc.*, and similar entries under other countries are rather arbitrary and anomalous, but none the less convenient entries. U. S. is the author of so many things that subdivision is necessary. Such entries as *U. S. Bureau of Education*, *U. S. Library of Congress*, etc., are author entries, but *U. S. Laws, statutes*, is a makeshift composite of author and subject, or form entry (covering the publications of a given subject or form issued by all divisions of the government). It is possible that an extension of this kind of entry might simplify the catalogue for the reader who does not at the moment recall, for instance, that publications on intellectual co-operation have been issued under six different corporate authors, all of which are parts of the League of Nations organization.

Many authors may be concerned in the composition of a single book. They may be joint authors, editors, translators, compilers, prefacers, illustrators, even publishers. All these call for entries, but you should remember that the main author card is that for the original author or the first of two joint authors (the author of "Jowett's Plato" is not Jowett, but Plato), and that the added entries, or references, under joint author, editor, etc., may not contain full information. There is no logical necessity for our practice of omitting the joint author's name from the heading—only the economic reasons of saving in writing, typing, or printing, and of saving confusion in the filing. At any rate, this is one point in library-cataloguing method which the bibliographer need not be constrained to follow.

There are several classes of books which some users may remember better by title than author—the rule reads "added entries for the titles of all novels and plays and of poems likely to be remembered by their titles; for other striking titles." Added entry under title is less systematically practised in university than in public libraries. The scholar, the professional scholar at least, should surely be enough of a bibliographer to know books by their authors. Stewart[1020] would limit added entry under title, in general, to books which are not entered under subject (e. g., plays, novels, etc.).

There are several kinds of works in which the editor-author is really of slight importance, or changes frequently: periodicals, newspapers, almanacs, year-books, directories, collections and anthologies, encyclopædias, etc. Here the title is the main entry (just as in the case of anonymous works, the Bible, epics, sagas, etc.); and editors whose editorial work is slight may even fail of added entry cards. There is also the *Handbuch* and *Grundriss* type of "composite" works (i. e., the works of several different authors working more or less independently and varying in different editions). These are entered under title (e. g., *Cambridge modern history*).

In the wording of a title entry there is a variance between the foreign practice of "catchword" titles (i. e., entry under the most significant word of the title) and the American practice of following the title as it stands on the title-page—though exceptions are allowed (we say *Pendennis* instead of *History of Pendennis*). In some cases we make a reference or added entry under catchword. Catchword titles are dangerous pitfalls; the selection of the one most significant word in a title is often just impossible. The arbitrary first-word rule is preferable, though it has its disadvantages when the title begins with obviously insignificant words (like prepositions)—and we dare omit none of them except the definite and indefinite articles (which are usually written on the card but ignored in filing).

In the transcription of the title our rules recommend completeness. If abbreviation of the title is advisable, as in case of the verbose titles popular in the seventeenth and eighteenth centuries, it should not be practised to the exclusion of any essential information about the authorship or content of the book.

On the title-page generally is found the imprint, which consists of place and date of publication and name of publisher. It is a constant irritation in bibliographies to find this omitted or abbreviated. The date is of the first importance, since it indicates how recent an authority the book is, but often it is not sufficient to distinguish the book from other books. There are different editions of the same date, published in different places. There are comparatively few, but still some cases of books published in the same place and with the same date but by different publishers. Therefore, sureness of identification requires all this information. Furthermore, from the bibliographical and scholarly point of view, not only is the date of importance but also the name of the publisher. Publishers have their respective reputations; and, in many cases, the publisher's name, no less than the author's, is a good indication of the character of the book. There are many times when the name of the printer as well would be of value, especially in the case of older books or books designed by such masters as De Vinne, Morris, Rogers, and Updike.

The title and imprint together form the third section of the catalogue card. The fourth section is the collation. This consists in the number of volumes, number of pages, number and character of illustrations, and size. Advocates of "short cataloguing" have least compunctions in abbreviating at this point. The number of volumes is necessary, as it would be in any list of the nature of an inventory. Paging and illustrations are usually less necessary for purposes of ordinary identification than for bibliographical purposes. If you have not seen a book for which you are asking, it is worth while to know whether it is an encyclopædic work or a ten-page pamphlet. The interest of illustrations goes without saying—for example, in books of description and travel, art books, books on costume, and, in fact, books of all sorts. Even size is often the basis of selection—for example, to take in our pocket on a railroad journey. Rare books, of course, must have the indication of size, as they are often issued in ordinary size and large-paper editions in the same printing; and again they have suffered or happily escaped "cropping" at the hands of the binders.

Directly following the collation, and in the same section with it, should follow the series note. There are series which are better known than the individual works in them. To know that a certain book is one of a certain series, say the Carnegie Institution Publications, is often decisive as to its merit or method of treatment. When such serial publications are catalogued as a single work or set of volumes (that is, classified to stand together on the shelves), they have to be "analyzed" for important individual works contained in them (i. e., separate entries must be made for each work or important part of the set). Again, even a book by one author may include a supplementary chapter by another author, and there must be a corresponding analytical entry in the catalogue. In all these cases an "analytical" or series note follows the collation, indicating the part which the smaller work occupies in the larger one.

It is often impossible to say whether or not the library has a certain work unless a "contents" note is added. For example, we were once unable to answer from the catalogue an inquiry for Frank R. Stockton's most famous story, *The Lady or the Tiger*. We had a considerable number of collections of stories by Stockton, but, as "contents" was not given on our catalogue cards we had to go through all these books on the shelves. In other cases, the contents is important for bibliographical purposes, indicating the scope of the work more adequately than the title does.

There are a number of other occasional notes. Corporate authors and periodicals need a "history card." A periodical may undergo various changes not only in its title but in its character and field of specialization, in the personnel of its editors, publishers, etc. It may be discontinued or suspended and resumed again, and so on.

The relation of one edition to another often forms an important note. We know of no instances where an author has published two works under the same name, but there are frequent examples of the same work being reissued under a different title. Titles may need a variety of explanation (e. g., to indicate that Drinkwater's *Abraham Lincoln* is a play, not a biography). There is also the field of critical annotation, into which the librarian rarely ventures, and this is one of the greatest criticisms of the librarian as a bibliographer. But even though he has not sufficient time nor adequate special knowledge, nor authority to censor, he may quote, from the author himself, important notes as to the scope and aims of the work.

Finally, the main entry card must contain the record ("tracing") of all additional cards made, so that, in case of change, correction, or removal, all the cards referring to a given book may be traced out and the change carried through the whole system.

In addition to added entry cards, there are cards under subject. American libraries work on the principle that a book should be accessible in the catalogue by its subject, as well as by its author and title. The subject catalogue cannot, of course, duplicate the indexes of all the books in the library. The first principle, therefore, in assigning subjects is that of economy. A book should, theoretically, be on a single topic, or on several clearly distinct topics, but libraries are sometimes extravagant in multiplying subject entries—for the benefit of readers unfamiliar with the principles of subject cataloguing and too little familiar with the very relations and terminology of the subjects they are investigating.* As far as possible, a subject which will be comprehensive of the whole material contained in the book should be assigned.

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* We can only make this point clear by hazarding a couple of concrete examples: (1) The subject headings, *Numismatics—Rome* and *Coins, Roman* are by no means synonymous, and yet the use of both these headings for a single book seems unnecessary. (2) A book on *Die Bernwardtüre zu Hildesheim* has the subject entries: *1. Hildesheim. Cathedral.* 2. *Bernward, Saint, Bishop of Hildes-*

The second principle is that of concreteness. *Subject* and *class* may be synonymous, e. g., in case of a general work on zoology, but technically a subject heading is quite a different thing from a class heading—flies are classed as insects, but flies are the subject of many different kinds of books, many of which may be classed, not under insects, but under hygiene. The user of the subject catalogue must accustom himself to being referred ("See also" references) from specific to general or, better, to going, without reference, e. g., from books specifically on flies to books on insects and other general and related topics.

The third principle is to use familiar terms and forms instead of technical and more general. We say "worms," not "vermes," except in scientific libraries, where the scientific form may be the more familiar.

The science of subject headings, like that of cataloguing in general, has not received sufficient study. Bishop [5] speaks of them as one of the unsolved problems of library science. Our various systems and lists of subject headings have more or less simply grown. Bishop suggests the desirability of comparing these headings and other possible headings with the indexes or entry words of encyclopædias (cf. Hanson [1004] on the method followed by Library of Congress); and studies of this sort would be particularly valuable in special fields (cf. the Library of Congress list of subject headings for a law library [1028], the Union Theological Seminary *List of Theological Subject Headings* [1009], etc.).

Most libraries have a special, simplified routine for pamphlets. Some libraries do not catalogue them at all but file them, along with clippings, pictures, etc., by subject, in a vertical file or in pamphlet boxes. The Newark library has a system of labels indicating class (i. e., shelving location) by color and position of label. Some libraries bind up miscellaneous

heim. 3. *Doorways.* 4. *Bronzes.* 5. *Sculpture, Mediæval.* The first two are specific subjects, but the student of doorways, bronzes, or mediæval sculpture should find the book from the classed list or the shelves, if not through his previous knowledge that this is one of his monuments.

volumes, or volumes of pamphlets on similar subjects, and catalogue the volume as a collection, with or without analytical entries and subject cards for each pamphlet. Many university libraries have a half-way stage, between order and catalogue departments, where pamphlets are arranged in large classes, until such time as their permanent value and the method of arranging and cataloguing can be systematically studied.

SHELF ARRANGEMENT. CLASSIFICATION

The borrower who receives his books by way of the circulation desk has no direct concern with the mysterious-looking call-numbers on cards and books other than to copy them correctly on his call-slip. If, however, it becomes important to his work to take stock of the library resources, say in the texts of a certain period of literature or in treatises on individual monuments of architecture, or to study any concrete topic in its general scientific relations, he will find the very number and concreteness of subject entries in the dictionary catalogue more elusive than helpful, and will see some force in the German criticism of American readers as being chiefly concerned with speed in acquiring some superficial or disjointed bit of information, with little regard to scientific thoroughness. It is true that this criticism ignores the dictionary catalogue's many cross-references between specific and general subject headings, but nevertheless the research student is generally best served by the classed catalogue or shelf list, and by direct access to the books as they stand on the shelves. (Cf. Leavitt [1006.1].)

While we have felt it necessary to urge upon the student a more or less detailed attention to problems and methods of cataloguing, he needs much less prompting to interest himself in a scheme of book classification, because of its general resemblance to the classification of knowledge itself. But the classification of the sciences and the classification of nature are really far simpler than library classification. In nature, plants and animals do not cross, as they do in books (e. g., in a book on cells). No scholar in any subject excludes himself from all other subjects. The more narrowly he specializes on a point in history or literature, the farther he goes afield for the bearing upon it of everything contemporaneous, until it is not infrequently hard to tell what his topic is or, if his topic is clear, to tell in which field it falls in the classification. A book about a specific country may be political, ethnological, artistic, geological, literary, sociological, technological, etc. It is often hard to tell which interest predominates, and the difficulty is inevitable (Jevons (*Principles of Science*) says that the classification of books "would be an exceedingly useful method if it were practicable, but experience shows it to be a logical absurdity"—cf. Sayers [1017] p. 72).

The classifier's general rule is to take the author's word for it—if only he gives you his word for it, on title-page, or in contents or preface. (Prospective authors please take notice!) Misleading title-pages are a curse of the cataloguer's life, even though he is better off than the student or bibliographer, having the book actually in hand. (Cf., for example, most of Ruskin's titles.)

Another general rule or tendency is to put an author's works together—though there is always danger of carrying this rule too far. Its degree of application varies with the library, and all libraries are inconsistent. For example, we should probably classify Arnold Bennett's *Your United States* as literature, but Wells's *Outline of History* as history. Again, we cannot absolutely rule Roosevelt and Wilson out of the field of literature, but our tendency is to put books by or about them in their period of U. S. History.

Other difficulties for the classifier are perpetrated by authors, publishers, and binders—in collected volumes of scientific essays, learned contributions, several books in one binding, etc. There is no help here but in arbitrary rules. If very miscellaneous, like general periodicals, we put them in a general division known as "Polygraphy" or "Form classes," perhaps distinguishing, where possible, between popular and learned. In the case of two or three independent works in the same binding, we may classify for the most important, or, lacking such criterion, classify for the first. The A. L. A. *Code for Classifiers* [990] has a long list of options—e. g., in the classification of two-topic books. "The designer of a bibliographical system must adjust the Knowledge classification so that it will embrace as many books as possible in their entirety, and must then compromise" (Sayers [1015]).*

The *Form classes*, which do not correspond to subject divisions or subdivisions in knowledge, are grouped roughly under the designation "form classes" or "generalia," in Polygraphy; and also under various subjects—e. g., the divisions for general theory or philosophy of a subject; for compends, outlines; for dictionaries, cyclopædias; for essays, lectures, and similar miscellaneous works; for periodicals; for societies and their reports, transactions, etc.; for collections (i. e., of several works by different authors); for history of the study, and for biographies of scholars in the field. Some systems also place the bibliography of a subject here instead of in a separate main class *Bibliography*. Certain subjects require other subdivisions of general material, like Folio works (in art), Freaks (in scientific and philosophic literature), Early works (e. g., sixteenth and seventeenth century), General treatises (also especially useful in the sciences), Mathematical recreations, Technological pocket-manuals, tables, books of formulæ, recipes, etc., Historical date-books, etc.

Richardson's classic work [1012] and Sayers's recent *Manual* [1017] lay down the criteria of a good classification scheme. The "primary virtues . . . are scientific order, consistent subdivision, mutual exclusiveness of terms, and generalness of application"; a good notation system (for indicating the various classes by symbols) "must be pure, brief, simple, and flexible" (Sayers). In Richardson we read, instead of generalness (i. e., comprehensiveness) of application, "minute detail," and the further requisites "a detailed and specific index" and "generalness of use." For notation, Richardson advocates "mixed symbols," but with a predominating decimal base.

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* Sayers here fails to distinguish bibliographical classification and library classification. A library classification is a scheme for the arrangement of material books on material library shelves, and a book cannot occupy more than one place; whereas a classified bibliography is a record of the place of the book's content in the immaterial encyclopædia of knowledge, and, like a catalogue, may record a book of varied content under a variety of topics.

The invention of classification schemes has been a favorite activity of philosophers, scientists, and librarians from Plato to the present time. Richardson enumerates 161 theoretical systems and 165 practical (library) systems. His own system should be mentioned as an example of a local system (Princeton University), and Bliss's [994] as the latest competitor in the field; but we shall apply the criteria just enumerated to only three American systems, which are or have been in general use: the Cutter Expansive [997], the Dewey Decimal [999], and the Library of Congress [1027] schemes (known in library "lingo" as E. C., D. C., and L. C., respectively).

The Expansive classification (E. C.) takes the alphabet as its base and divides, for the most part, alphabetically (e. g., Z, Book arts; Zd, Writing; Zda, History of alphabets). Locations are indicated by a "local number" added to the class mark. For example, 81 indicates North America and Z81 would indicate Book arts in North America. Aside from this, the classification has relatively few mnemonic devices. "Cutter author marks" (see below) may be added, according to circumstances, either as an aid in closer subdivision (e. g., in local history) or simply as a device for a consistent shelf arrangement within the class.

The Library of Congress to a considerable extent uses the alphabetical basic classes of the E. C., but with a mixed notation of letters and figures.

The D. C. as its name implies makes all divisions and subdivisions on a decimal basis. There are several distinct decimal systems in use in special libraries and corporation filing departments (e. g., the Pennsylvania Railroad and the U. S. War Department), but the term is most often popularly applied to the system invented or adopted by Melvil Dewey. This divides on a basis of three figures, i. e., the main classes are 000, 100, 200, etc., and a decimal point is placed after the first three figures when further subdivision is necessary (e. g., 016.6, 873.42, etc.).

All these correspond in the general large divisions. And the difficulty of accustoming oneself to an unfamiliar one is often exaggerated. The first chief difference is in the order of a few main classes (cf. the tables in Sayers or the outline schemes in the different schedules themselves). Most noteworthy is the wide division in the Dewey system between Language and Literature, Language belonging in the Science group (the "400's") and Literature in the Fine Arts (the "800's"). There is more variation in the arrangement and number of subdivisions. Countries may be arranged geographically, historically, or alphabetically. The same is true of language. Scientific topics or species may be arranged alphabetically, scientifically, or historically as literature grows up about them.

In the matter of scientific arrangement, the palm is generally yielded to the Cutter schedule ("library methodology has received no more thorough, no more scholarly scheme, and none with greater possibilities of usefulness"—Sayers). It is used in only a few libraries (probably because Cutter died before the fullest expansion could be completed), and its chief permanent contribution is the use made of it in drafting the Library of Congress schedule.

In the Library of Congress scheme "the main classes, as a whole, do not modulate into one another"; it is "rather a series of large special classifications" (Sayers), but since each of these is the elaborate and generally successful work of a specialist in the field, they are in themselves inferior to none in scientific arrangement and articulation, and any corresponding lack of philosophical modulation in the relative location on the shelves of merely the large divisions (e. g., G, Geography; GN, Anthropology; GR, Folk-lore; GT, Manners and customs; and GV, Sports and games) can cause little or no practical inconvenience. The number of libraries being reclassified according to the L. C. schedules is increasing.

The Dewey classification makes no bones of violating the first of the criteria, preferring practical convenience to philosophical merit ("Practical utility and economy are the keynotes of the entire system and no theoretical refinement has been allowed to modify the scheme if it would detract from its usefulness or add to its cost"). Its use has, therefore, been limited in the main to public libraries, while the larger University, Reference, and "Special" libraries have either invented their own systems (like the Richardson scheme at Princeton) or greatly modified and expanded the D. C.* Also several expansions of the D. C. have proven necessary, in spite of the early criticism of it as too detailed. It is evident that libraries need a more or less minute classification, according to their relative size and variety of function. The Richardson system enlarged the schedule by use of a four-figure instead of three-figure base. Cutter endeavored to meet this variety of needs by composing a series of seven expansions, the first planned for a library of a few score of books, and the seventh (never completed) "one of the most minute schemes . . . in existence" (Sayers). It was necessary, however, as the expansions progressed, to change some of the fundamental symbols used in the first scheme; and a growing library could not change from the first or second scheme to the sixth or seventh without practically an entire reclassification of its books. The minuteness of the Library of Congress scheme is evident from the mere size of the volumes containing the schedules of the different subjects (e. g., the volume for J, Political science, runs to 374 pages, exclusive of index).

This minuteness of the L. C. is one of the considerations—probably second only to its approximate correspondence with the order of things according to up-to-date scientific theory—which has led to its increasing use in large libraries. To small libraries, however, we have had occasion to give advice that this minuteness is less desirable than the broader and much more rapidly administered D. C.

The *sine qua non* of the consistent application of "consistent subdivision" and "mutually exclusive terms" is a complete index of topics, special interpretations, etc. The "Relative index" of the D. C. is perhaps its greatest triumph. It matters comparatively little (only comparatively of course) what the classification itself is, if it is provided with a satisfactory guide for finding one's way about in it. The Cutter system suffered in competition because of the incompleteness of this part of the work. The Library of Congress promises to be very satisfactory when completed; there are excellent indexes in the volumes of the published schedule and many references to class numbers in its list of subject headings.

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* The most elaborate expansion is that of the Institut International de Bibliographie.

In generalness of use, the D. C. far surpasses all other systems, although use of the L. C. is constantly increasing. It is practically impossible, however, that any system should find universal acceptance—every large library at least has its own specialties, requiring special schemes of classification, and every library has its own local or special point of view. For example, church history is largely history, and theology is largely philosophy, in a university which has no theological curriculum; agriculture may be of interest only or chiefly in its relation to botanical and chemical courses; politics and history may be so closely associated in the curriculum that constitutional history may be classed as history; ancient history may fall within the domain of oriental and classical philology; art and archæology may be inseparable, etc. Even our national library has a special point of view as it is the Library of Congress.

The most striking difference between present current systems is in the matter of notation (for convenience we include here both class and book notation). Obviously the class and subclass, minor subclass, etc., and the name of author, the title and the number of the edition cannot be written on every book and card except by some form of shorthand notation. Notation includes symbols for (1) class; (2) author; (3) title of book (not necessary in all cases unless more than one of an author's works fall in the same class number); (4) edition (where the book has several editions); (5) sometimes a symbol to bring about a chronological arrangement; (6) special location. The symbols for author and title are usually "Cutter numbers." These consist of the first letter of the name (or title) followed by a number which fixes its place in alphabetical order.

There are various devices for the chronological arrangement of editions or of works under a subject—some arbitrary, like the "Biscoe" date table (in use at the John Crerar Library), others giving the actual imprint date in either full or abbreviated form (L. C. uses date in full). The special location symbols are due to the fact that books must often be shelved for the convenience of readers in the reference collection, general or special reading-room, departmental libraries, seminary rooms, or branches. Also over-sized books (folios, quartos, atlases, etc.) or books so much under the usual size that they would get lost on the shelves must be put into special places of their own, and the fact indicated by a Q (quarto), F (folio), or some other suitable mark. Even many who have made considerable use of libraries are likely to forget these special location marks in their use of the book stacks or in making out call slips for books they desire brought to them. The result is like giving a street address in Washington or London without indicating the postal district.

The symbols used are occasionally mere symbols, but, generally, letters or numbers or both. They should be brief, clear, intelligible, and expansible; and the most satisfactory combination seems to be a decimal class number, a Cutter author number (letter and decimal), with further Cutter numbers for book-titles, and with decimals for editions. Certainly the Cutter number for authors and titles is the clearest, most intelligible—Sm2 or Sm1199 is an author named Smith; and, as 2 and 1199 are decimals, there is always room for one more Smith.

The D. C. has the further mnemonic feature that identical subheads in various classes follow in the same sequence—e. g., in case of a topic subdivided by country, the country is indicated by the same figure as in History (900's).

To sum up this comparison of a few classification schemes: The Cutter system was philosophically sound, as minute as necessary, clear and flexible in notation, well indexed, but never completed and never in very general use. The D. C. prefers the practical to the philosophical, in its original form was the least detailed, but is unexcelled in its clear, mnemonic, and expansible notation, has always been famous for its index, and has the widest use. The L. C., so far as it is completed, is thoroughly scientific (at least within the large subject divisions), minute to an extreme, somewhat inflexible in notation (a less serious defect in view of its minuteness), indexed both in its volumes of classification schedules and its list of subject headings, and gaining popularity among libraries. There is no perfect scheme of library classification in existence—at least, none in operation—but, as remarked at the outset of this chapter, the student's interest is here a very practical one and his familiarity with even the general outlines and characteristic features of the D. C. and L. C. will both demonstrate and create, for him, their remarkable serviceability.

REFERENCE DEPARTMENT

We have already alluded to the reference librarian's functions as "information desk" and as an instructor (in formal or informal manner, for class or for individual reader). The reference librarian knows the catalogue better than any one outside the catalogue department and is second to none in his knowledge of what the books contain, of the sources of information. More thoroughly and intimately he knows his collection of reference books—general encyclopædias, encyclopædic works in special subjects, and the year-books, periodicals, and periodical indexes where the most up-to-date information is to be found (cf. chaps. 8–9). He is not himself an encyclopædia of knowledge, but, to repeat our earlier quotation from Dana, he "holds the eel of wisdom by the tail" in knowing where to find information of all sorts. His work "is primarily help given to a reader, not performance of the reader's task" (Bishop [5]). Thus his equipment is similar to that which we wish our students to acquire, if not in the whole encyclopædia of knowledge, at least in their own special and related fields of study.

In theory, therefore, the advanced student should require very little reference assistance as compared with the younger student and the "general reader." * But we have often been embarrassed to have the reference librarian locate instantly

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* Our own experience is quite the opposite of that of the librarian quoted in the A. L. A. *Survey*, v. 2, p. 191: "Information-desk work in the college library is the sort of service that undergraduates need; reference work is the more exacting type of assistance needed by graduate students and the faculty."

in some obvious work like the encyclopædia or *World Almanac* some fact which we had vainly sought in the more specialized and (to us) more familiar works in our subject.

Briefly, although Richardson [1] defines the function of the reference librarian as twofold—the finding of books and the finding of facts—he is, for our students, first and foremost, a guide and instructor in the use of the library. Furthermore, when we are general readers, his finding of books involves selection of books (when the reader lacks acquaintance with the literature of the subject which has aroused his curiosity). He compiles select or comprehensive bibliographies, reading-courses, etc., for debating teams, literary clubs, and even individual students. He is the keystone of the structure of adult education which the American Library Association, in co-operation with other agencies, is earnestly trying to build up throughout the library system of the country (cf. Bishop [5]).

SUPPLEMENTING THE RESOURCES OF THE LIBRARY

The suggestion has already been made (chap. 2) that a taking-stock of the library resources should precede the student's serious undertaking of a research project. It frequently happens, however, that no one library is absolutely complete on the minute topic of the doctoral dissertation, and the student should be aware of the services of interlibrary loan and library extension, of the use of the photostat, and of the order department of his own library.

Some university libraries extend their service by correspondence and parcel-post, but necessarily in very limited amount and kind (although the A. L. A. *Library Extension* [991] reports specialized university-library-extension information service in thirty-four States). City libraries work through permanent or temporary branches, sub branches, and stations; which may be parts of their own system or located in schools, hospitals, prisons, etc. State libraries and library commissions extend their service in travelling libraries, package libraries, and direct mail service (cf. Flexner [989], A. L. A. *Survey* [988]).

The county library is a comparatively new development which is growing rapidly in many States, either as an extension service of a city system or as a separate institution. It consists of a central collection of books and serves the whole county through local libraries, schools, stations, mail service, and travelling "book-wagons." Thus the farmer and the village doctor, lawyer, and minister are no longer entirely limited to the number of books which they can buy from their own meagre incomes (cf. A. L. A., *Library Extension* [991]).

INTERLIBRARY LOAN AND PHOTOSTAT SERVICE

The advanced student may feel that much of this service for adult education is designed for uneducated adults, but that should not be the case. Even though the book stock of the village, township, or county library be more popular than scholarly and more general than monographic, demonstrated book needs will eventually be recognized and met, if not by new purchases, by borrowing from other library systems. The routine and risk involved in loaning to another library are much less than in direct service to non-resident individual borrowers, and even some non-circulating libraries make an exception to their rule, in favor of the interlibrary loan. The California State library maintains a union catalogue of books in different California libraries (A. L. A., *Library Extension*, p. 60), and the union catalogue of the Library of Congress has grown to 1,300,000 cards, indicating locations of books in various other libraries throughout the country. On the other hand, until union catalogues (cf. chap. 11) and the information regarding the specialized resources of libraries (cf. chap 15) become more complete and more thoroughly organized, there is danger that the few famed largest libraries will be overburdened with requests for loans. The Library of Congress and Harvard College Library, for example, have already found it necessary to restrict their loans to college libraries to books wanted for the use of members of the faculty only (though we understand that rare special cases may receive special consideration). Most libraries will refuse interlibrary loan requests for books that can be easily and cheaply purchased, for books needed by their own clientele, in constant reference use, etc. Also many libraries will not loan rare books, volumes of periodicals, etc., owing to the difficulty or impossibility of replacement in case of loss; but insurance generally insures, provided the borrower is willing to bear the expense of it, and for ordinary periodical volumes, which no book-collector's love of rarities has raised to a fictitious market value, "photostat" copies may be substituted if need be. The photostat is better used, however, as a substitute for interlibrary loan. The largest libraries the world over constantly render service to other libraries and to individual scholars by arranging to have photostatic or photographic copies made of single pages, articles, and even whole books and MSS., provided no copyright question is involved and, in case of MSS., provided the library approves the use to be made of the photographs (cf. McCombs [1007] and Cole [995.7]).

ORDER DEPARTMENT

In general, libraries prefer buying to borrowing, provided the book requested can be bought within the limited library budget and with good conscience so far as the book's further usefulness and suitability to the library's scope are concerned. The reader will frequently find "suggestion slips" an invitation to assist the library in its selections for purchase.

The reader is not deeply concerned with the methods by which these purchases are made, but a little knowledge of the necessary routine will remove any impatience at the time which elapses between the suggestion and the appearance of the volume on the shelves. All departments of the library lose time because of the frequent mistakes and omissions in the bibliographical information given by the reader; and the order department perhaps suffers most.* The circulation department requires only call number, author, title, and volume-number; the order department must know the place, publisher, and date of publication, and, very likely, some indication of the character, merit, and cost of the book. In case of out-of-print or rare books, the cost must often be looked up in auction records or estimated by an expert order-department chief, and time may have to be taken for inquiry among domestic and foreign dealers, for advertisements, etc. The correspondence files, invoices, inventory record ("accession book"), accounting, etc., are accordingly voluminous and complicated. The circumstances of endowment and appropriations (e. g., a single fund or a number of special endowments) and the financial regulations of the State, municipality, or institution of which the library is a part may also introduce complications.

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* Works [1031] reports as typical a case in which it took forty-nine hours to check and correct a list of 260 purchase-requests.

The principles of book selection are briefly noticed in chapter 9. The method of selection depends in part on the type of library and in part on the staff organization. Usually the librarian is the final authority, although a committee of trustees (public library) or of faculty (college and university) may be nominally responsible. The librarian may himself make the selection from such sources as the *Book Review Digest*[1431] or various review journals, from lists of "best books" (like the A. L. A. *Catalog*[1183]), and from trade catalogues, or may make use of the special tastes and talents of his staff-members (particularly of the reference librarian and others who are in close touch with readers' requests) to recommend from reviews or to review from their own reading. The entering of a subscription for a periodical is a type of request that calls for particularly careful consideration—on the one hand, because the subscription involves expenditures (for both purchase and binding) year by year for an indefinite period, and, on the other hand, because of the importance of periodicals as current and up-to-date sources of information (cf. chap. 9).

THE UNIVERSITY LIBRARY

University-library practice has perhaps already received more emphasis than is usually given to it, but, for our students, it is not amiss to point out still more specifically a few contrasts between the university and reference libraries and the average public circulating library. Currier's paper on *Selective Cataloguing*[996] contrasts the university community with the general public: "not . . . persons of all ages and every degree of culture, intelligence, and intellectual experience . . . but . . . the undergraduate, the specialist at work in his own field, and any student touching for the moment upon unfamiliar ground." Richardson [1013] tersely sums up the function of the library as regards research use and undergraduate use by saying that for dissemination of knowledge we bring a small number of books to a large number of people, while for production, research, we bring a small number of people to a large number of books.

It is the research side of university-library work which distinguishes it from the ordinary public library (cf. Waas's *Volkstümliche und wissenschaftliche Bibliotheken* [1030]). Public libraries very reasonably claim to have progressed beyond the original conception of a library as a storehouse for books, but it is hardly conceivable that a university library should undertake to reduce its "dead stock," for example, by eliminating all books which had not circulated within the last year—or even the last fifty years. There are many books which the university library seems simply to store. They have been wanted at some time, though we may have forgotten when, and will at some time again be indispensable for the completion of a piece of research work.

The research point of view affects not only the number of books which the library purchases and stores, but also the kind of books. The call is not limited for the most part to books in English, popular works, and books of contemporary date, but is for scholarly works of all ages and countries. On the other hand, acquisitions may be limited by special curriculum interests—for example, Theology, Agriculture, Medicine, Law, etc., will be "weak" in a university which has no fully developed curriculum in these subjects. In fact, the future success of American university libraries depends in no small degree on a more carefully and fully worked-out division of labor (cf. Gerould [1625])—say on some such plan as the working agreement among Chicago libraries, the proposed pooling of resources between the Harvard Graduate School of Business Administration, the Boston Public Library, and the Business Historical Society (cf. *Library Journal*, Feb. 1, 1927). (Cf. Works [1031], chap. 3.)

Selection of research material in special subjects is beyond the powers of a single librarian or his staff (unless it includes a corps of specialized departmental librarians); hence the university library leans heavily on the faculty. In most universities the bulk of orders for foreign books is so large that time and money are saved by ordering abroad, and the bulk of orders for out-of-print books is large enough to drive the library to the second-hand trade.

Over half the college libraries reporting in the A. L. A. *Survey* "may be classed as open-shelf or mainly open-shelf." The unrecorded "stack use" is so large that the circulation department could not, if it would, tell with any certainty which books are used and which could be discarded to make more storage space, nor has it any reliable statistics as to the amount of use. Further, when books are borrowed for use outside the library, the professor and the research student cannot be economically held to public-library regulations such as the limitation to two books at a time for a period of two weeks.

University library classification should, of course, be as scientific and up-to-date as possible, but any given scheme of classification is likely to be modified and interpreted differently in different libraries, with reference to the curriculum needs—e. g., church history may be classed not in theology and religion but in history, many libraries scatter all individual biography and special subject bibliographies among the subjects in which the subject of the biography was prominent or of which the bibliography treats, etc.

The cataloguing in a university library is more difficult in that it deals with more difficult books, but may be simplified in many ways because of the manner in which the research student works. He studies books from the shelves, and when he consults the catalogue it is usually the author card, not the subject card, which he looks for. He has already learned of the book's existence from other sources. Consequently, Harvard, for example, omits entry under subject in large groups of books (cf. Currier [996] and the accompanying discussion).

SPECIAL COLLECTIONS. SPECIAL LIBRARIES

The libraries generally grouped under the designation "Special libraries" or "Special collections" are of the utmost variety. Some of the latter form regular departments or divisions in large libraries—e. g., Periodicals, Government documents, Maps, Manuscripts, Rare books, etc. There are collections, seminaries, or departmental libraries, for subjects which have become particularly important in the library because of curriculum interests or by gifts from private collectors, whose benefactions of this sort are very considerable. These various divisions of the library are of immense usefulness to the specialist in one or another of the subjects thus treated. On the other hand, if his topic of research overlaps the fields of two departments—as in physical chemistry, classical antiquities, or constitutional history—he will find his material divided between the main "stack" collection and the departments of physics and chemistry, of classics and art, of history and politics, etc. In discussions of centralization or division of the book collection, the conscientious librarian will necessarily emphasize the greater difficulty in the administration of a divided library, and the greater expense involved in additional staff service, in duplication of books and card catalogues, etc. At the same time he will welcome the addition to his staff of experts in the various subjects and subject bibliography, who should greatly increase the library's efficiency all along the line, in the selection of titles for purchase, classification and subject-cataloguing from the point of view of practical usefulness to each department, reference service to the research student as well as to the younger student and general reader, etc. "The possibilities of reference work in reference libraries are, I believe, but dimly seen as yet . . . one might say that the keynote is specialization . . . " (Bishop [5]).

A general periodicals department or several periodical divisions in order, catalogue, and reference departments will be found in most large libraries; and students of all classes will consult them frequently for current numbers not yet bound and entered in the public catalogue, for the bibliographical history of different titles, and for aid in checking up or collecting references to articles on a given subject.

In a sense, any attempt to generalize in regard to methods in vogue in special libraries must be a failure. To a great extent, the chief excuse for their existence lies in their special adaptation of material and method to their special conditions of use. In the larger collections (e. g., the Library of the United Engineering Societies or the Massachusetts Historical Society), the methods of administration do not differ much from those in well-conducted public or university libraries. There is, of course, always emphasis on material in a special subject or in a closely related group of subjects. They do not aim to cover the whole field. It is, therefore, obviously necessary for the prospective user to know their scope.

Besides these large collections, there are many others, often maintained by banks or business firms or by some special group of interests which want a clearing-house of information. In these eminently practical collections, the methods are usually very direct. The collection may be in constant process of weeding out. Pamphlet and clipping files may largely take the place of shelves of duly catalogued books. Periodical indexes and printed or mimeographed reference lists may take the place of much of the card catalogue. The staff usually must furnish information, prepare digests, and do much other work not possible or required in a general library. Inasmuch as most of these special libraries are not primarily intended for public use, it is good policy as well as good manners for the research worker who wishes to use them to adjust himself, through inquiry and observation, to their special methods and conditions of use. *Special Libraries* [1452], the organ of the Special Libraries Association, is the best single place for description and discussion of the methods and purposes of these libraries.

THE PRIVATE LIBRARY

If the formation and administration of public and institutional libraries, designed to serve the masses or comparatively large groups, cannot wisely be made to conform to uniform theory and rules of practice, it is plainly impossible to lay down any detailed procedure for the private library, the variety of which must be as the variety of the individual the world over. The literature on the subject is correspondingly unsuccessful from a technical point of view, though it would be possible to give a long list of interesting and stimulating reading. From De Bury [992], in the fifteenth century, to Newton [1010] in the twentieth, book-collectors have earned literary distinction by their own writings on their hobby. Allan's *Book-Hunter at Home* [987] is an example of the happy combination of literary charm and practical advice. Mühlbrecht [1008], Slater [1018], and Winterich [1030.2] are more or less systematic introductions to the various bibliographical topics which concern the collector of rare books.

But "a *real* man's library is not *made*, it *grows*" (Willis's *Bibliophily*, Boston. 1921). "Time graduates a man from school and college, but never from his library—it is the workshop of a *gentleman* as well as the workshop of a scholar" (*ibid*). The scholar and gentleman may be referred, e. g., to Humphreys's *Private Library* [1005], but the best book on such a private library has still to be written. The beauty, rarity, and likelihood of increase in market value of a book interest the scholar but little—too little. Nor, as a scholar, will he fall victim to any buy-a-book-a-week programme—as he might if merely a gentleman. Realizing perforce the truth of "Buy what thou hast no need of, and ere long thou shalt sell thy necessaries," he will know the literature of his special field and will distinguish between books which he needs for constant or immediate use and books which will round out his collection on the subject, if and as he can afford to buy them. He will know his contemporaries in the field—what reliance to place on their book-reviews and what to expect of their books. We cannot tell him what books or when to buy. But a study of the methods of large libraries and of collectors may give him valuable suggestions as to how to buy and how to manage his library. While the bulk of foreign orders may lead the large library to deal through foreign agents, the occasional or even frequent purchase of single volumes is more efficiently and economically made through a domestic importer. The collector of rare books may employ agencies or firms of the second-hand book-trade, or follow the auctions, while the scholar of moderate means finds his corresponding pleasure in reading the ordinary catalogues of dealers in his specialty or in hunting for his out-of-print desiderata in the shops themselves. (Cf. Starrett's *Student of Catalogues* [1019].)

Practically every person who collects a private library, either for study or recreation, at some time feels an urge to arrange it systematically. Most of these attempts fail because they are too elaborate. The classification of books according to size is limited to a very few categories in large libraries, but may be carried to any limit by the private librarian, whose book space is limited and who can remember just what every one of his books looks like, if not exactly where he put it. Any subject classification he makes is subject to radical change in accordance with his next specific topic of investigation; and all his professional books, of whatever class, will be arranged according to their bearing on the topic. The rest of his books, however, should not be a mere miscellany; if he has as many as, say, a thousand volumes, he may well adopt the main classes of the L. C. or the D. C. schedule and, perhaps, a few major subdivisions.

No real book-lover need be cautioned against disfiguring his books with the call numbers and other marks necessary in large libraries. A pencilled mark in the corner inside the cover or on the book-plate is sufficient, and does not permanently deface or lessen the value of the book. A good book-plate, in fact, may add to the value of the book. Signatures on fly-leaves and manuscript notes do not increase its value unless the owner is really a celebrity.

The cataloguing of a private library is a delightful task for its owner; but the elaborate scale which he is likely to adopt at the beginning will eventually bore him and fail of consistency and completion. One needs a brief list, indicating author, title, and frequently, if not always, imprint, number of edition, notes on condition of binding, etc. Otherwise the man of even a thousand books, who does not use them all every day, will buy duplicates of which he has no need. This catalogue need not necessarily be on cards—a loose-leaf notebook ("sheaf catalogue") of card size (3 by 5 inches) is quite satisfactory.

If the private library lends as frequently as once a year, a dozen books may turn up missing in as many years, and their whereabouts will be a mystery unless they have been "charged out," say in a note-book marked for the purpose. This will both aid and relieve the memories of loaner and borrower, and will save the occasional mistaking, such as we have experienced, of a loan for a gift!

Perhaps the greatest difficulty in the arrangement of a private library is in the handling of special material—pamphlets, separates or extracts from periodicals, newspaper clippings, photographs, post-cards, etc. Here only a study of a number of the latest catalogues of library furniture and a visit to some newly equipped library—or, better, some library school—will suggest right solutions of the difficulties. Old libraries, whether public or private, are crowded with practical-looking but impractically operating files, binders, pamphlet boxes, and, worse than all, desks with odd-sized pigeonholes and flat, deep drawers. The modern library desk should be equipped for the vertical filing of standard-size cards and correspondence.

CHAPTER VIII

GENERAL-REFERENCE BOOKS

Reference books have been defined as "the clearing-house of knowledge" and "libraries in miniature" (cf. Mudge[1040]), but they are more to be distinguished by the method and generalness of their use than by the encyclopædic character of their content. The category includes not merely the great universal encyclopædias but many works in special fields which are in general use among students of all fields—dictionaries, encyclopædias, year-books, etc., of language, history, sciences, etc. Their use is for reference, and while a reference book should be authoritative, an authoritative work which is not edited and printed for the maximum convenience and rapidity of consultation is a poor reference book.

The arrangement of contents may be, according to the material dealt with, diagrammatic, cartographic or tabular, chronological, systematic (i. e., scientific order) or alphabetic. There should be a detailed index—except in alphabetic arrangements where the units are more or less minute, as in dictionaries, concordances, etc. These comments seem obvious, but really only practice shows the comparative usefulness of similar works. For example, in our ignorance of astronomy, we were once unable to locate the subject "Perturbations" in the *Britannica* until we had read an article on it in the *New International Encyclopædia* (the *New International* is in "dictionary style" with some 80,000 articles on individual topics, while the *Britannica* is in "monograph style" and our "Perturbations" were authoritatively settled there in the article "Astronomy," to which we were guided by the index entry "Planets—perturbations of").

The authority of an encyclopædia is never beyond scrutiny. Editors sometimes sell their names instead of their labors to the work. It is likely, too, that, e. g., a German encyclopædia will be more authoritative as well as more detailed in German biographies and other topics of particular interest to Germans than an encyclopædia edited under other national auspices. Furthermore, each contributing author has his own peculiar interests and limitations—the author of the article "Architecture" in the *Americana* is more interested in practical architecture, the *Britannica* author gives more space to the history of architecture; and neither work includes a signed authoritative article on "Indexing."

Graham [1063] describes these three encyclopædias, together with *Chambers* and *Nelson's Perpetual Loose-Leaf Encyclopædia* as "major encyclopædias." Her "minor" group includes *Appleton's*, *Everyman's*, *Winston's*, the *Catholic*, and the *Jewish* encyclopædias (the last two we should elevate to the major group if we judge them by standards of scholarship rather than popular marketability). The major list should also include *La grande encyclopédie*, *Larousse*, *Brockhaus*, *Meyers*, and similar encyclopædias published in Italy, Spain, the Scandinavian countries, etc. (cf. Mudge [1040]). And just as these are particularly important for topics of especial interest in given countries, so the older editions and older works of encyclopædic character have a permanent value for topics of particular interest in their times. People, places, and things unmentioned in contemporary encyclopædias may be the subjects of long articles, say in the first edition of the *Britannica*, the old "Ersch and Gruber," "Zedler," or the famous *Encyclopédie* edited by D'Alembert and Diderot (cf. *Encyclopædia Britannica*, s. v. "Encyclopædia").

The *Catholic Encyclopædia* [721] is of only slightly less general scope in that it pays particular attention to topics of Catholic interest—e. g., it is particularly valuable on all that concerns the mediæval church and mediæval civilization in general. The *Jewish Encyclopædia* [564] is more sectarian—or racial—and is of first importance in all that concerns Jewish civilization. Similarly the Pauly-Wissowa *Realencyclopädie* [608] covers the whole civilization of the Græco-Roman world, and there are encyclopædias of modern nations and races—e. g., Wilcox and Rines's *Encyclopedia of Latin-America*. Hastings's *Encyclo-*

pædia of Religion and Ethics [723] and Palgrave's *Dictionary of Political Economy* [312] exemplify classes of encyclopædic works in special subjects which are of universal interest (cf. further chaps. 4–6).

No less obvious than encyclopædias as general reference books are the dictionaries—in fact, *encyclopædias, cyclopædias,* and *dictionaries* are not at all clearly distinguished by their makers (e. g., Palgrave's *Dictionary* would be better named "cyclopædia"). The *Century Dictionary and Cyclopedia* is correctly named, and represents a combination of lexicographical and encyclopædic treatment of words. (It also includes many illustrations and has, in separate volumes, a cyclopædia of names and a geographical atlas.) The *Oxford English Dictionary* is also as big as an encyclopædia, but is purely lexicographical (it aims at completeness in the history of every word, from its first appearance in the language, with quotations to illustrate all its different uses). Thus dictionaries differ in amount and kind of information given on each word. They also differ in the number of words included. The *Oxford* dictionary includes more obsolete words than *Webster* or the *Standard; Webster* is more conservative than the *Standard* toward new words. In pronunciation and spelling, *Webster* is also more conservative than the *Standard.* Notable differences in arrangement are the single alphabet of the *Standard* (*Webster* has separate lists of personal and geographical names, and on each page prints the less used words in smaller type in the lower portion of the page) and the *Standard's* placing the current definition of the word before the historical. (Cf. more detailed description in Mudge [1040], Hopkins [1038], and Graham [1063]; and interesting historical accounts of the making of English dictionaries in the *Britannica,* s. v. "Dictionary," and in Sir James A. H. Murray's *Evolution of English Lexicography* (Ox., 1900).)

Dictionaries of foreign languages are included in Mudge and in the subject bibliographies of the various languages (the *Britannica* list is somewhat out of date). A list of good bilingual pocket-dictionaries is a thing we have often wished for —the only satisfactory one in our experience is Jannaris's

English-Modern Greek dictionary. A German like Langenscheidt gives in the English-German division of his book the English words, followed by several German equivalents—perhaps the German user has no difficulty in selecting the proper German word to fit the context, or in thinking of another perhaps more colloquial, but the English-speaking traveller does not know which German word to select, and very likely finds that none of them is the colloquial expression which he wants. None of the bilingual dictionaries, of course, are the best authorities. They are all concerned with giving the common equivalents in another language. For serious use in the English language you use, not *Langenscheidt* or even *Flügel*, but rather *Webster*, the *Standard*, or the *Oxford*. In the same way for French, the best dictionary is one entirely in French, *Littré;* for German, *Grimm;* and so on.

There are multitudes of special dictionaries: Etymological (e. g., Skeat); Synonyms (e. g., Roget's *Thesaurus*); Slang; Dialects; Rhymes; Words often mispelled or mispronounced; Dictionaries of special sciences, of the Bible, of geographical and biographical names, etc. (cf. list in Mudge [1040]).

Types of geographical reference books which we all have occasion to use are atlases (e. g., Stieler, Rand-McNally, the U. S. Geological Survey topographic sheets), gazetteers (e. g., Lippincott, Vivien de St. Martin and Rousselet, and, for Latinized place-names, Graesse's *Orbis latinus*), and guide-books (Baedeker, Meyer, Murray, the *Blue Guides*, *Guides Joanne*, etc.). The general reader verifies historical dates and allusions by reference to such works as Harbottle's *Dictionary of Battles* and *Dictionary of Historical Allusions*, Haydn's *Dictionary of Dates* (alphabetical), Heilprin's *Historical Reference Book . . . a Chronological Table*, Ploetz's *Manual of Universal History*, etc. (cf. Mudge).

Among biographical dictionaries, Lippincott's is probably the most used in this country, and the most universal in intention, including men and women of all nations and periods, even of mythological periods. "Michaud" [1374] and "Hoefer" [1385] are the most important works in this class, for older biographies. A favorite handy-volume universal biography is that of Phillips (cf. Mudge). The German *Allgemeine deutsche Biographie* [1259] is a tremendous work of national biography, but Stephen's *Dictionary of National* [British] *Biography* [1231] is by far the best example of this type (a similar work on American biography is being prepared by a committee of the American Historical Association). Mudge lists over 100 national dictionaries of biographies and *Who's Whos.* More or less every country, State, city, or institution has one or more. Then there are the special classes—from *actors* at the beginning of the alphabet to *women* at the end—e. g., for college graduates cf. Cole's *Check List* [243].

Reference works, like all the other classes of books we have discussed, must be supplemented in two ways—for more detailed information and for later developments:

(1) For fuller information other literature on the subject must be studied, and it is a sad fact that so often the weakest part of an encyclopædia article is the accompanying bibliography, the proper function of which is really to point the way to a complete survey of the literature.

(2) One solution of keeping the encyclopædia up to date is the "perpetual loose-leaf" system ("No fewer than 250 revised pages are sent to the [Nelson] subscribers every six months . . . about 2,000 changes a year being made."—Graham), but the most-used encyclopædias depend on supplements (e. g., the *Britannica* so-called twelfth and thirteenth editions) or year-books (e. g., the *Americana Annual* and the *New International Year Book*). There is even a *Larousse mensuel.*

To these should be added such very general tabular and statistical annuals as the *World Almanac* (it gives the most unexpected bits of information—e. g., on the treatment of snake-bites—and the reading of its index is a liberal education). Other titles that should be familiar are *Whitaker's Almanac,* the *New Hazell Annual and Almanac,* the *Statesman's Yearbook* [172], etc. There are year-books for nearly every country in the world, every profession, every religious denomination, every science, every art, every trade, every sport—and all the way up and down the social register. Even Cannons's *Classified Guide to 1700 Annuals, Directories, Calendars, and Year-*

books[1137] is not complete (e. g., the *Americana Annual* and *New International Year Book* are omitted), and each year produces a new crop. In the professional world probably the most important titles are *Minerva Jahrbuch der gelehrten Welt*[1173] and *Index generalis*[1169]. *Minerva* is arranged alphabetically by names of towns (in their vernacular) and enumerates, under each, universities, colleges, technical schools, libraries, museums, and learned societies, with information as to statistics, personnel, publications, etc. The *Index generalis* is arranged in five divisions: Universities and schools, Observatories, Libraries and archives, Scientific institutes, and Learned societies. Learned societies are arranged by subject, the other groups by regions, countries, then cities. It is thus, in spite of its personal and geographic indexes, generally less convenient to consult than *Minerva* (but specifically, by subject, more convenient), and it is said to be guilty of more inaccuracies, but, on the whole, contains more information (e. g., in matters of laboratory equipment, regulations, and policies, etc.). (Cf. chap. 9 for other directories and bibliographies.)

In special fields a few examples must suffice: in history the *British Annual Register;* in biography, the multitude of *Who's Whos;* in the field of government, the *Almanach de Gotha;* etc.

The brevity and perfunctoriness of this chapter, so disproportionate to the importance of the topic (Buck[7] enumerates twenty-five "Types of reference books") results partly from our inclusion of so many reference books in other chapters as bibliographical sources, but chiefly from the availability of Mudge's excellent text-book and reference bibliography, which all our students should possess. This *New Guide to Reference Books*[1040] is the culmination of long study and practical experience in library reference work. The first *Guide* was written by Alice Bertha Kroeger in 1902, was kept up-to-date by annual supplements in the *Library Journal* and by occasional pamphlet lists. Miss Mudge is responsible for the supplements since 1909, the third edition of Kroeger (1917) and the *New Guide* (1923), which will soon appear in a second somewhat extended edition.

The *New Guide* is designed for two groups of users: (1) as a text-book for the student of library science and bibliography, (2) as a manual for the worker in the library—research student or library assistant. The annotations, primarily designed for the library student, are more concerned with the scope and contents than with detailed scientific criticism of the works cited. On the other hand, special consideration is shown to the general and research student in the inclusion of special and foreign reference works and of bibliographies less used by the average American public library than by universities and individual scholars. Its greatest omissions are probably of books in other than the Romance and Germanic language groups (in which we too have confessed our deficiencies).

Mudge may be supplemented for both annotations and additional titles by several other reference bibliographies, such as those included in general works on bibliography (cf. chap. 1) and library science (e. g., Baker's *Uses of Libraries* [1620]). For books in less familiar languages, the student will find occasional use for foreign manuals (like Graesel's *Führer* [15]), and, better still, the catalogues of library reference collections (cf. app.) —for example, we recently referred to the *Verzeichnis der Handbibliothek* of the Vienna National Library [1042] for a list of etymological dictionaries of Eastern European languages.

Graham's *Bookman's Manual* [1063], although it is limited for the most part to "those classifications on which a student bookseller is first likely to need special knowledge," deserves special mention for its detailed and delightfully readable descriptions of the most used English reference books. Hopkins's *Reference Guides That Should Be Known and How to Use Them* [1038] is very elementary in both content and treatment, but is well worth looking through for the sample pages of different types of reference books, sample questions illustrating their respective uses, etc.

Finally, we should call attention to a group of analytical and index bibliographies of reference material. The most frequent and essential reference is to material in current periodicals (cf. chap. 9), but there are many chapters in individual books and many essays and articles in collected and composite works which, though valuable for reference purposes, are not brought out in either library catalogues or other general bibliographies.

The German *Internationale Bibliographie der Zeitschriftenliteratur* 1157 does include such material but in no permanent cumulated form. In the *A. L. A. Index* 1032 "The general purpose was to index as far as possible all books (i. e., all books in English) common to our libraries which treat several subjects under one title and to the contents of which the ordinary catalogue furnishes no guide. . . ." In the British counterpart of this, Cotgreave's *Contents-Subject Index* 1035, "the chief aim is, not to give everything which appears in a select number of works . . . but rather to cover as many subjects as possible and give a few references to each one."

A similar sort of general-reference material is contained in the various series of analytical extracts and bibliographies for debating and general reference purposes, on topics ranging, e. g., from Capital punishment to the Study of Latin and Greek (*Debaters' Handbook Series* 1036, *Handbook Series* 1037, *Reference Shelf* 1041, *Useful Reference Series* 1453, etc.).

CHAPTER IX

SPECIAL BIBLIOGRAPHIES

Special bibliographies is a term used to include a number of lists of books distinguished, on the one hand, from universal bibliographies, which attempt to include everything, and, on the other hand, from the clear-cut divisions of subject bibliography and national bibliography. Special bibliographies are not limited, therefore, as to country of origin, language, or subject, but are concerned with special categories of books like the "form" or "generalia" classes (cf. chap. 7). Their peculiarities may be roughly grouped under the heads: Authorship (e. g., anonymous, corporate, etc.), Edition or publication (first editions, unfinished works, etc.), Make-up (*de luxe* editions, microscopic editions, etc.), History and association (suppressed books, "association copies," etc.), Content (freaks, erotica, etc.), and Value or use ("best books," text-books, reference books, etc.).

Bibliographies described as listing books "Noteworthy in general" are so extensive that many libraries class them with universal bibliographies. One of the earliest is Debure's *Bibliographie instructive* [1056]—originally planned to include rare works only, but, as it appeared that the number of them was not considerable nor varied enough to fill Debure's complete bibliographical system of classification, he included also "la plus grande partie" and "les meilleures éditions des ouvrages ordinaires et généralement estimés." Dibdin's *Library Companion* [1059] is mentioned next, less for its intrinsic value than to call attention to its famous author. He is deservedly famous for his *Bibliomania* [1000], which caught the taste of the time and placed him in a position, as Lord Spencer's librarian, further to arouse interest in rare books. Probably his greatest achievement was his share in the organization of the Roxburghe Club, "which was the parent of the publishing societies which have done so much for English history and antiquities" (*Dictionary of National Biography*). *The Library Companion: or, The Young Man's Guide, and the Old Man's Comfort in the Choice of a Library*, stood high in the estimation of its author ("it may be stated that the work . . . is replete with curious and diversified intelligence; gleaned with unceasing industry and embodied with no ordinary care. Indeed, with perfect confidence it may be stated, that no single volume in our language contains such a record of so many rare, precious, and instructive volumes"). But it was "the only one of his works which was fully (and very severely) reviewed at the time of its publication," and Dibdin has been not unfairly described as "an ignorant pretender, without the learning of a schoolboy, who published a quantity of books swarming with errors of every description" (*Dict. of Nat. Biog.*). All Dibdin's works were of bibliophile rather than scholarly interest, and several of them have themselves become "collector's items," for example, his *Bibliographical Decameron* [1058], which was expensively illustrated with engravings and woodcuts and contains a great deal of amusing and interesting gossip on books, printers, collectors, auction sales, etc.

Jacques Charles Brunet, a contemporary of Dibdin, achieved a greater and more deserved fame as a bibliographer. He was trained in his father's book-shop, and his first compilations were sales catalogues. In 1810 he published the first edition of his *Manuel du libraire et de l'amateur de livres* (3 vol.), and then enjoyed its success through five editions, the last of which [1053] (1860–65) was in six double volumes and is described (*La grande encyclopédie*) as "a prodigy of patience, exactness, erudition, and a monument of bibliography without rival." It was supplemented (1878–80) in two volumes containing some 10,000 titles by Pierre Deschamps and Gustave Brunet. Brunet largely supersedes earlier bibliographies and is still, excepting certain library catalogues, our most valuable single source of information for books published from the fifteenth to the early nineteenth century. Its 40,000 books are described with fair fulness (except in the sometimes important matter of collation), with valuable notes on the relation of different editions to one another and with interesting, though now superannuated, notes as to price, ownership of copies, etc.

As might be expected from Brunet's antecedents and the taste of the times in France, as well as in England, Brunet's chief interest is that of the bibliophile, and French and Latin books outnumber books in other languages. The attempt to give works of scholarship their due place was made, in Germany, by Friedrich Adolf Ebert, who is described in the old Ersch and Gruber *Allgemeine Encyklopädie* [1370] as "Germany's first bibliographer and librarian." His *Allgemeines bibliographisches Lexikon* [1060] (2 vol.) was much briefer than Brunet, but is still valued for its careful descriptions and critical notes, as well as for the inclusion of learned works and works in German not necessarily rare or high-priced. That Ebert was a born librarian appears from the story of his boyhood life, when his chief pleasure is said to have been the arranging of his father's library; and his *Bildung des Bibliothekars* [1001] is a librarian's classic.

The re-edition and supplementing of his *Bibliographisches Lexikon* was cut short by his early death and it has been replaced by the more copious work of a successor of his as librarian at Dresden, Johann Georg Theodor Graesse. Graesse's *Trésor des livres rares et précieux*, 1857–67, and suppl., 1869 [1062], while including much of the same material as Brunet, follows Ebert in the inclusion of books in German and of books more valuable in the study than in the trade. Brunet and Graesse, therefore, rank together on the bibliographer's shelf, duplicating each other in a great deal and supplementing each other.

These are, of course, merely the most outstanding titles in the general field of special bibliographies; and the student should refer to lists, e. g. in Schneider's *Handbuch* [1417] and Allan's *Bookhunter at Home* [987] (chap. 6, "Books of the Collector"). Some of the best bibliophile compilations (e. g., Lowndes, De Ricci, Carteret, etc.) are concerned with the noteworthy or rare books of a given country and are listed under national bibliography (chap. 10).

While all students should desire and deserve to be bibliophiles, we are probably the class of people least subject to bibliomania, to the rage for mere collecting which Carolyn Wells has described as "the idiot's delight." Rare and curious books do not interest us as such, but the following clipping illustrates how just an ordinary useful book may become rare and costly without losing its scientific value: "A few hours prior to the commencement of the earthquake in Tokyo the Japanese Government Printing Office had begun taking from its presses the June issue of trade returns which contained, in addition to the trade for that month, a résumé of the trade for the entire fiscal year. The Tokyo office of the [U. S.] Department of Commerce, learning that issue had commenced, immediately sent a messenger over to the Printing Office for an advance copy. When the messenger returned it happened that a mail-pouch was being made up for transmission to Washington and the single copy was included at the last minute. . . . All other copies of the volume in question were burned, so far as is known, in the complete destruction of the Government Printing Office" (*Library Journal*, Dec., 1924).

Rahir's *Bibliothèque de l'amateur* 1076 will indicate to students in special fields a few of their predecessors whose works, in some edition or other, have become outstanding "collector's items"; and you may find that Allan 987, in his "Plea for Specialism," has recommended your own subject to collectors.

When you have the misfortune to have to purchase rare books, you will be driven to the reading of second-hand catalogues, such as those of Quaritch, Sotheby, Maggs, and Sotheran in England; Harrassowitz, Hiersemann, and Baer in Germany; the American Art and the Anderson galleries in New York, etc. Then, if not before, you will actually take to reading them as you have opportunity—like Starrett's *Student of Catalogues* 1019—for the sake of the bits of unusual information and out-of-the-way titles which are often difficult to locate elsewhere. Karslake's *Notes from Sotheby's* 1069 is a sort of anthology of such notes and titles.

Books which are peculiar in matters of authorship may be grouped somewhat as follows: (1) Anonymous works. (2) Pseudonymous works. (3) Works with fictitious imprint.

(4) Forgeries, plagiaries, etc. (5) Books often asked for by title, the author's name forgotten (cf. Peet [1073], Schneider [1079], etc.). (6) Books by special classes of authors (royalty, women, children, negroes, etc.). (7) Books of corporate, composite, and miscellaneous authorship (especially government publications, publications of learned societies (including dissertations, programmes, etc.), memorial volumes of miscellaneous authorship ("Festschriften," etc.), and periodicals).

ANONYMNS AND PSEUDONYMNS

Schneider in his *Handbuch der Bibliographie* [1417] attempts an analysis of the reasons for the loss or concealment of the author's real name: (1) Fear of political or professional consequences. (2) Diffidence. (3) Embarrassment, e. g., of an official who wishes to air purely personal views. (4) Natural secretiveness. (5) Desire to hoodwink. (6) Desire to make a fresh start. (7) Mere love of change. (8) Æsthetic dislike of his own name. (9) Pseudonyms suggested by the nature of the book. (10) Author's name forgotten through accident or custom (e. g., mediæval sagas, romances, mystery plays, etc.). (Cf. also Halkett and Laing [1064], v. 1 pref., where also five classes are distinguished "according to the method by which concealment is sought.") Anonymns or pseudonymns may therefore turn up in any class of literature; and the establishment of the author's identity is always interesting and important. We list (cf. app.) bibliographies describing over 100,000, and there are other similar compilations.

Concealment or evasion of a local censor, local copyright law, etc., has been similarly attempted by "fictitious imprint"—Weller [1084] is the most extensive compilation of these.

Literary forgeries have been dealt with in a number of literary historical works, but, so far as we know, there is no bibliographical enumeration of them. Farrer's *Literary Forgeries* [1061] and Madan [1480] relate the stories of a number of classic instances which should be part of the general information of all students of literary history (the forgeries of classical authors by Constantine Simonides and Annio of Viterbo, the autograph letters by Vrain-Denis Lucas, Chatterton's Rowley poems, Ireland's Shakespeare, etc.). Rivers's article[1077] quotes examples from ancient classical times down to modern times, with more detail as regards plays in the Restoration period, when "it sometimes happened that an English version of a French play was produced as original on our stage, and was translated back into French and vice versa, until things got to such a pass that it was the most difficult thing in the world to fix the paternity of a play with any degree of certainty." Sometimes, of course, forgery is not designed to hoodwink the reader, but is, frankly, a mere literary device to create a setting or atmosphere for a narrative (such as "Charles Major's" *Dorothy Vernon of Haddon Hall*), and there are doubtful cases like Francis W. Bain's pretended translation from a Sanskrit manuscript, *Digit of the Moon*, where the Sanskrit title on the title-page may have the purpose either of undeceiving readers who know Sanskrit or of deceiving readers who do not know Sanskrit.

SPECIAL CLASSES OF AUTHORS

The bibliographies of books by special classes of authors are probably not numerous. Their occasional use may be like that of personal bibliographies or biobibliographies (when your investigation involves detailed study of a given author and all his works), or in some historical or sociological study of this or that class of people. Detweiler's *Negro Press*[1057] deserves particular mention as a recent work of some current sociological importance, since it deals with nearly 500 negro periodicals, many of which are of purely local circulation and would be unknown to sociologists without some such original and individual research.

The four groups which follow—Public documents, Periodicals, Publications of societies, and Dissertations—can be safely said to be indispensable to all students. The number of monographs and articles contained in each of these classes of literature is probably as great as the total number of single books in existence. Libraries have not been able to catalogue these analytically, except a few monographic series, which have been issued separately as books or pamphlets. They have to be got at by other means than the library catalogue. And they *have* to be got at because they contain original researches never published elsewhere and because they contain the latest information, whether of science or of events.

CORPORATE AND COMPOSITE AUTHORSHIP. GOVERNMENT PUBLICATIONS

Government publications have blackened as much paper as all other printing put together—except the daily press—and lack catalogues because no one has a pecuniary interest in compiling them (Langlois [104]). Booksellers have long led the way in bibliographies of books, but we are only gradually approaching a satisfactory bibliographical organization of public documents throughout the world. The sets are long and complicated, reflecting, of course, the complications and changes continually being made in the organization of the departments of governments, and the student might well give up in despair if he drew the logical inference from such statements as that of Langlois, that there are no bibliographical aids and that perhaps the most important source material on a given topic could only be gleaned by a lifetime's search (the British "Blue books," for example, before the war, used to run to a hundred volumes annually). It is certain that students in each country must have some shorter method of research in the publications of their government than reading them through, and this is pretty well demonstrated in Childs's recent list [1088].

In addition to or in lieu of bibliographies, books on the science and history of government inform the student of the organization and general range of activities of the departments of a government, and there are the current legislative manuals and directories—in the United States, for instance, the Congressional Directory, the Manual of the Common Council of a city, the Legislative Manual of a state, etc. (Cf. Wyer's *U. S. Government Documents* [1]).

Secondly, such manuals of general information as the annual *Statesman's Year-book* [172] and the official year-books of individual countries, in indicating the sources of current information, often refer the student at least to certain groups of documents.

Finally, various collections on special subjects, indexes, analyses, abstracts, etc., are named, though incompletely, in subject bibliographies like Maunier's *Manuel bibliographique des sciences sociales*[305] and Gavet's *Sources de l'histoire de droit et des institutions françaises*[128] (fuller for historical collections of documents than for current publications).

With the growth of international organizations since the war, it is inevitable that increasingly serious efforts should be made to acquaint the students of all countries with the official publications of all countries. The Reference Service on International Affairs led the way, in its *Bulletin*[396] no. 3 (October, 1924), with a *Summary of Source Material.* This "deals with the character, scope, and method of securing the principal and most accessible publications on international affairs": First, those of the League of Nations, the International Labor Organization, the Permanent Court of International Justice, with a brief indication of the number and activities of other international organizations, both public and private (cf. the League of Nations' *Handbook of International Organizations*[1089]); and, secondly, under "Principal government publishers," the chief publications of international interest issued by the United States, Great Britain, and France, including some of their official lists of publications. "No mention is made of the less numerous but important documents published by other governments."

This work has been continued on a more comprehensive plan in their *Official Publications of European Governments*[1087] (exclusive of Great Britain) including extremely valuable lists of both serials and separately issued documents. Care has been taken to include mention of such official bibliographies and indexes as exist. Not least among the commendable features of the work is the careful indication of its limitations: " . . . to produce the work at all, it has been necessary in great part to pass over the technique of the bibliographer. In many cases the documents cited have not been available to the Reference Service. The co-operation of many governments and governmental departments has been necessary. This variety of sources, added to the difference of languages and the fact that most official publications are never placed on sale, has made uniformity and completeness difficult."

There is still room, therefore, and greatly improved chances of success (with the use of this list) for the project of the American Council of Learned Societies, the American Library Association, and the National Research Council, to compile a complete catalogue of the "serial publications of foreign governments, political and scientific in character, which record national progress during the last century," with the record, in a supplementary volume, of the holdings of American libraries. The realization of the project has been recently assured by a grant from the Laura Spelman Rockefeller Memorial, which will provide, among other things, for uniform editing and description, based on direct inspection of the documents (cf. the report of the committee by J. T. Gerould, in A. L. A. *Bulletin*, Feb., 1927, and a prospectus later issued by the committee).

An enlarged edition of Childs's Manual [1088] should follow, and, although we can hardly hope for an international index, the work of the Reference Service and of this committee will inevitably lead to the recording of individual documents in the various subject and national lists.

The bureaus, committees, etc., of the League of Nations organization have thus far been subject to even more frequent changes of name and function than the departments of national governments, and the corporate author entries and serial numbers of its publications are correspondingly intricate; but the bibliographical record of these documents is rapidly becoming organized (cf. Myers's *International Documentation* [1093], the official list of *Publications* [1090] and *Subject List* [1091]).

In the study of public documents, the United States is the land "ihres klassischen Schrifttums" (Schwidetzky [1129]). The comprehensive richness of this branch of American bibliography is evident from the mere number of manuals, text-books, etc. (cf. Mudge [1040]). The most complete is that by Swanton [1103]. It is divided into 11 parts, one for each of the 10 executive departments, and one for the miscellaneous important independent bureaus and commissions (e. g., Library of Congress, Superintendent of Documents, Interstate Commerce Commission). Each part is divided into sections, one for each bureau, and there is a brief description of the department considered. This is in compact summary form. The best text-book and introduction is Clarke's *Guide to the Use of the U. S. Government Publications* [1453] (including such lists as "Aids as to the history and organization of the publishing bodies," "Aids as to the publications," etc.). The preliminary use of these or other similar books is helpful, if not essential, to the finding of a given document-publishing body and its publications in the official indexes and catalogues. Everhart's *Handbook of U. S. Public Documents* [1097] (1910) is still to be recommended for its clear and readable treatment of the history of the various series of publications, the changes made in consequence of changes in the organization of governmental departments and bureaus, etc.

The chief indexes are as follows:

(1) The *Checklist* [1107], issued by the Superintendent of Documents, gives a complete inventory list (not a catalogue) of the documents, under the following divisions: (*a*) The American State Papers—i. e., a select list which is all that has come down to us for the first 14 Congresses.—(*b*) The Congressional Documents of the 15th to 60th Congresses (1817–1909).—(*c*) Department publications, arranged alphabetically by department, with indications of the sets and numbers issued and their dates, and with full titles and dates of special publications. Knowing, for instance, the bureau or department concerned with the topic you are investigating, you may thus readily collect your document material up to 1909; further, if you know the approximate date of some departmental publication, you can almost immediately turn to its description in the *Checklist.* Unfortunately, the projected index volume, which would lead the student to all the material in all the documents on more or less minute subjects, was never published.

(2) *Tables of and Annotated Index to the Congressional Series of U. S. Public Documents* [1111] (1902). The "Tables" have been

superseded by the *Checklist*, but the minute subject index may be used in place of an index to the *Checklist* for the Congressional series of 1817–93. For the years 1774–1817 and for such departmental and other documents as are not included in the Congressional series, one has to use "Poore" and "Ames."

(3) Poore's *Descriptive Catalogue* 1101 covers the period 1774–1881.

(4) Ames's *Comprehensive Index* 1094 covers the period 1881–93.

(5) The *Catalogue of the Public Documents* 1106, cited as "Document Catalogue," covers the period 1893– , and forms a complete series of dictionary catalogues for each Congress and each two-year period of such department publications as are included in the Congressional series. The latest volume (1925) covers the session ending in 1919.

(6) For material after 1919, we refer to the less complete *Index to the Subjects of the Documents and Reports* 1108. This contains (*a*) an alphabetical index, giving a short title of the documents with reference to document numbers and the volumes of the Congressional series in which they are published, (*b*) numerical lists, in document number order, (*c*) schedule of volumes with their serial numbers.

(7) For still later material the *Monthly Catalogue* 1109 contains, in addition to some general information, a full description of documents, arranged by departments, with an annual detailed author and subject index.

(8) The *United States Daily* 1112 includes a daily list of new publications available for sale or distribution.

(9) *Price Lists* 1110, issued in frequently revised editions, are occasionally useful for annotations and for indicating what is still in print and obtainable. Different numbers deal with different special subjects (28, *Finance;* 57, *Astronomical Papers of the Naval Observatory;* 65, *Foreign Relations;* etc.).

(10) Since the *Document Catalogue* and the *Index* cover only the Congressional series, students in special fields will have much occasion to use the lists and indexes issued by various departments for their own publications, and reference should also be made to

(11) The *National Service Monographs*[1099], a very useful series for general and bibliographical information regarding the federal departments, etc.

The general importance of publications of departments may be well instanced by the Smithsonian Institution *Reports* which are a "perfect mine of valuable and interesting information," containing "dissertations on every topic that can possibly engage the mind of man" (*Public Libraries,* Dec., 1924). Cf. also the various department publications which we have had occasion to cite in other chapters.

(12) The debates and other proceedings of Congress are indexed only in the different series of published records: *Annals of Congress,* 1789–1824; *Register of Debates,* 1824–37; *Congressional Globe,* 1833–73; and *Congressional Record,* 1873– (cf. *Checklist,* p. 1463–75).

(13) For hearings, in addition to the *Checklist* list of "Miscellaneous publications," reference should be made to *Catalogue* of the U. S. Senate Library[1104].

(14) For statutes and case law the official compilations included in the *Checklist* are supplemented by various non-official compilations, digests, reports, etc. (cf. Hicks, *Methods and Materials of Legal Research*[412]).

(15) Various other non-official bibliographies and indexes, of which Hasse's *Index to U. S. Documents Relating to Foreign Affairs*[373] may be taken as an example.

Publications of the various States and cities are harder to use, as they are less adequately listed and indexed. We have listed Bowker's *State Publications, a Provisional List*[1096], Hasse's *Index of Economic Material*[1098] ("economic" has been liberally interpreted so as to include almost every aspect of American history). Useful general introductions describing the character of State documents, various methods of publication and distribution, etc., are Reece[1102] and Wyer[1].

For current bibliography of State documents, see the Library of Congress Division of Documents, *Monthly List*[1105], a full catalogue of all State documents received by the Library of Congress (with annual index).

Municipal documents are briefly dealt with in Wyer[1].

Among his references, note Bates's *Municipal Ordinances* 1095 "tabular exhibit of the present status of the publication and distribution of documents in American cities of over 25,000 population" and the New York Public Library's extensive check-list, *List of Works Relating to City Charters, Ordinances, and Collected Documents* 1100.

The Brief Guide to Government Publications of Great Britain 1121, issued by H. M. Stationery Office, is chiefly devoted to "A short descriptive classification" of both Parliamentary and non-Parliamentary papers, by subject (history and archæology, law, government, science, and technology, etc.). Lees-Smith's *Guide to Parliamentary and Official Papers* 1126 gives a brief descriptive enumeration of the various serial documents (exclusive of the non-Parliamentary department publications). The *Brief Guide's* list of current "Catalogues and lists" includes daily, monthly (indexed), and decennial *Consolidated Lists* 1123 of all government publications, a *Monthly Circular* 1122 (select list with brief notices of the most popular publications), *Numerical List and Index to Sessional Printed Papers* 1118 (one for each session, including only Parliamentary papers—for older indexes covering decennial or longer periods, cf. Lees-Smith), *Guide to Current Official Statistics* 1119, and several departmental and "sectional" (i. e., topical) lists. During and since the war a considerable number of departmental publications have been transferred from the Parliamentary to the Stationery Office (non-Parliamentary) publications. The annual bulk of Parliamentary papers has thus been reduced from over a hundred to some thirty volumes, and the amount of material distributed free of charge has been correspondingly reduced (Lees-Smith). A useful retrospective bibliography is King's selective *Catalogue of Parliamentary Papers*, 1801–1900 1125 (with later decennial supplements).

For the official publications of other countries, our list is fragmentary and uncertain (the student may now, however, be referred to Childs's systematic and fairly complete list of existing bibliographies and indexes): Burpee's *Check-List of Canadian Public Documents* 1114, the Canadian Government's *Price List* 1115 and monthly *Supplement*, an Italian list for 1861–

1923[1124], and catalogues of the Austrian[1113] and French[1127] government printing-houses, etc. Schwidetzky's *Deutsche Amtsdrucksachenkunde*[1129] gives the history and classification of German documents and an account of the efforts made to organize the collection and current listing of them. The Deutsche Bücherei has done considerable collecting and cataloguing since 1913, but the only published bibliography of great value is the catalogue of the Reichstag Library[1116] (also valuable for foreign documents in the possession of the library). Henri Stein and others began the compilation of a list of French documents 1815–1900 but never published it (cf. Wright[189]).

PERIODICALS

Estimates for the yearly output of periodicals vary from 60,000 to 600,000, according to the number of newspapers included (cf. Iwinsky[22] and Schneider[1417]). Periodical publication represents the "greatest change in book fashions since printing began"; it is "now truly the fashion of the day in all lines the world over" (Bishop[5]). Whereas the old-fashioned scholar hid his light under a bushel for twenty years and then startled the world with an epoch-making book, most modern scholars are assisting in what Sarton[80] calls "unnecessary disintegration or crumbling" of learning, whether in a laudable effort to keep the world up to the minute on their researches, or, as Sarton implies, because of a reasonable desire to advertise their professional wares. Bishop's estimate that "journals are usually about five years ahead of the books in every subject" is essentially if not numerically true; and scholars frequently read through the indexes of more than five volumes to supplement the standard reference works with later publications (both articles and "books reviewed"). A scientific article of the present month or year is not only the latest word on the subject, but also, incidentally, the latest record of previous investigations; and the student who reads only, but regularly, a certain number of both American and foreign periodicals on his subject will be much better posted than the student who reads only books. But also the general periodicals, and even the newspapers, often include important articles, sometimes the earliest reports on important researches (e. g., the news of archæological discoveries and scientific expeditions; also a recent volume of the *Classical Weekly* [622] contains a list of classical articles in non-classical periodicals). Scholars in every field are not averse to the popularization of their researches; and, for the students of the social sciences in particular, Pliny the Elder's statement, that no book is so poor but that it has something of value in it, may with equal truth be applied to periodical and news articles.

There is no complete bibliography of periodicals. The best guide and history is that in the *Encyclopædia Britannica* (s. v. "Periodicals"). The best general lists are catalogues like that of the British Museum [1375]; and union catalogues, such as that for German libraries [1146] (current periodicals), that for Swiss libraries, and the various union lists published in this country, such as Homer's list of periodicals current in libraries in Boston, Cambridge, and vicinity [1144], and, the greatest union list yet undertaken, the *Union List of Serials in the Libraries of the United States and Canada* [1151] (edited by Winifred Gregory, with the advice of a committee appointed by the A. L. A.). It indicates all (at least all the important) periodicals available in some 200 American and Canadian libraries, old titles and new, indicating number of volumes, whether the American holdings are complete or partial, and where the various sets are located. Annuals and government serials are generally omitted. One of the editing committee (J. T. Gerould) finds that from one-third to one-half the periodicals listed by Lanson [647] and Diesch [1142] are either lacking, incomplete, or insufficiently distributed geographically among these 200 libraries; and doubtless a great many titles could be added from other national union lists or subject bibliographies like the *Inventaire* of scientific periodicals in Paris libraries [784], the *World List of Scientific Periodicals* [803] (a union catalogue for British libraries), the *Elenco alfabetico* for libraries in Rome in the fields of "scienze morali, storiche, filologiche, belle arti, ecc." [1130], and similar lists for other countries and subjects. Important special lists are: Beutler's *Raisonnirendes Verzeichnis* [1135] (eighteenth-century journals), Walter's *Periodicals for* *the Small Library* 1152 (annotated), Phelps's *Periodicals of International Importance* 1145, Hicks's *Serials of an International Character* 1139, *Index Bibliographicus* 1438 (for periodical bibliographies in all fields—cf. chap. 11), and Cannons's *Classified Guide to 1700 Annuals* 1137.

The *Union List* serves not only as a union catalogue and the most extensive bibliography of periodicals yet published, but is leading to the rapid acquisition by American libraries of periodical sets not available in this country hitherto. These new accessions would soon make the *Union List* out of date but for the timely offer of the Library of Congress to make the experiment of filing, in its union catalogue, cards for new sets of periodicals and serials received by American and Canadian libraries.

German bibliographies cite lists published by postal departments in Germany, Austria, Switzerland, etc. (cf. Schneider 1417). The standard national list for America is Ayer 1133. This lists well over 20,000 newspapers and periodicals (excluding school, small-college, and local church papers, and "house organs" issued primarily for advertising purposes, etc.). Cf. especially list 6 (monthly and weekly publications) and the lists on special subjects. Severance's briefer *Guide* 1148 (about 12,000 titles) is a very convenient reference list, in a single alphabet with subject index. For a certain group of subjects cf. Stock's *List of American Journals Devoted to the Humanistic and Social Sciences* 1149. These are concerned with current periodicals. Recent retrospective lists are Brigham's *Bibliography of American Newspapers, 1690–1820* 1136, and Beer's *Checklist of American Periodicals, 1741–1800* 1134.

For current British periodicals the most familiar list, as it is the cheapest, is Willing's *Press Guide* 1153. For identifying older titles and for historical purposes the London Times's *Hand List of English and Welsh Newspapers* 1150 is useful; it includes all sorts of periodicals—except official periodicals issued during the war, annuals, society publications, and local church periodicals. It is based on the British Museum collections, and has the advantage of the British Museum *Catalogue* in its chronological arrangement and in bringing the list up to more recent date. For British newspapers in American libraries cf. Crane's union catalogue [1140].

For French periodicals Hatin [1143] is the most useful retrospective list, with detailed and historical notes, but unfortunately never completed and now out of date. A current directory is the *Annuaire de la presse française* [1131], which, like Ayer, includes statistical and other information for the journalist's reference. Cf. also Le Soudier's *Annuaire des journaux, revues et publications périodiques publiés à Paris* [1132].

The German *Deutscher Zeitschriftenkatalog* [1141] is an excellent classed list with title index. Similarly, for other countries, there may be found more or less up-to-date comprehensive bibliographies of a retrospective character and current press-association lists (cf. Mudge [1040] and the more extensive but less up-to-date lists of bibliographies and selected titles in the *Encyclopædia Britannica* article "Periodicals"). The current national trade lists (cf. chap. 10) include titles of periodicals as they appear from year to year.

The periodical lists which are classified or indexed by subject are helpful in a survey of periodical literature on a given subject; a list like Beutler's, covering a certain period, will interest the historian of that period; and a national list will interest the historian of that nation. Published library catalogues and union lists have the important additional feature of showing where the periodical is actually available. Even the alphabetical lists of titles have an important use in the verification and supplementing of the many vague and uncertain periodical references one meets with. Periodicals have checkered careers, with changes in name, in editorship, in scope, in volume numbering, introducing of new series, and so on. In the compilation of our bibliographical appendix, we have sometimes had difficulty in finding out whether a periodical was current, in arrears, temporarily suspended, or "ceased publication." * The *Bulletin of Bibliography* [1432] keeps a current record of "Births and deaths in the periodical world"—its cumulation would make an interesting history of periodicals.

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* If periodicals would only give notice of their own demise after this example!—"Cy finit sans aucune oraison funèbre *Le Livre Moderne*, qui durant 24 mois consécutifs du 10 janvier 1890 au 10 décembre 1891 fut imprimé à Paris aux frais et par les soins de son directeur-rédacteur Octave Uzanne. Cette publication laisse quatre volumes—sinon à l'oubli—à la curiosité littéraire de l'avenir."

PERIODICAL INDEXES

The titles and scopes of periodicals are of less concern to the student than the articles published in them. You may, of course, go from a classified or subject catalogue of periodicals to the index volumes of the individual periodicals falling within your field. Every periodical of scientific value should have not only an index in each volume but occasional cumulated indexes covering a term of years. Cf. the "Répertoire des tables générales de périodiques de toutes langues" in Stein's *Manuel de bibliographie générale*[1418].

The combined indexing of a number of periodicals began in America with the work of William Frederick Poole[1160]. His first index covered the years 1802–47 (later eds. and suppls., to 1907, listed 590,000 articles in 470 different periodicals) by subject. Articles having no subject (e. g., fiction, poetry, etc.) were entered under title. The periodicals indexed were, for the most part, of a general nature, with only a few on special subjects. Annual continuations of Poole were included in the *Annual Literary Index* (for 1892–1904) and the *Annual Library Index* (for 1905–10)[1154].

The *Readers' Guide to Periodical Literature*[1161] was started in 1901 as an index for a small library, covering at first only fifteen popular periodicals. In 1903 it absorbed the *Cumulative Index* (published by the Cleveland Cumulative Index Co., 1896–1903, and indexing some fifty periodicals), and in 1911 took over the periodical indexing work of the *Annual Library Index*. Over 100 periodicals are now indexed currently, in full dictionary-catalogue form. There is first a monthly issue, then a quarterly cumulation, an annual cumulation, and, finally, cumulations covering several years (1900–04, 1905–09, 1910–14, 1915–18, 1918–21, 1922–24, and 1925–June, 1926). A complete set to date thus consists of the permanent cumulated volumes, all the annuals since that volume, the latest quarterly cumulation, and the monthly numbers issued since that quarterly.

In 1907 a *Readers' Guide Supplement* was begun, the first volume (1907–15) indexing some 55 periodicals which had not been indexed in the *Readers' Guide*, and some 19 more which were taken over from the *Readers' Guide*. The second volume (1916–19) indexed 126 periodicals (the additional number being chiefly foreign periodicals taken over from the card index carried on since 1909 by the American Library Association, with the aid of several co-operating libraries). This has been superseded by the *International Index to Periodicals* [1156], published five times a year, the January number of each year forming the annual cumulation. About 200 periodicals are indexed, 45 of them still by the seven co-operating libraries under the A. L. A. plan; 74 of these are foreign publications. (Cf. Wilson [1208] on these and other cumulative lists of the H. W. Wilson Company.) Few students in special fields realize how many periodical titles could be eliminated from their current reading-list by the use of this index.

Another important American magazine-index is that published by the F. W. Faxon Company—its first issue (1908) under the title *Magazine Subject Index* and the supplements under the title *Annual Magazine Subject Index* [1155]. It is intended to supplement other indexes, and from time to time drops periodicals which are indexed elsewhere; it includes more local history periodicals and more English periodicals in its 166 titles than do other American indexes. Clark's *Check List* [1138] includes all the periodicals indexed in the titles mentioned as well as in the *Engineering Index* [980], *Agricultural Index* [932], *Industrial Arts Index* [981], and *Public Affairs Information Service* [346].

In England the Library Association undertook in 1915 the *Athenæum Subject Index*, now the *Subject Index to Periodicals* [1162]. Each annual volume is issued in sections, class by class, each class subarranged alphabetically by topics, with an author index for the whole. It duplicates some of the material of the *International Index*, but also indexes many periodicals not to be found there, especially British local history periodicals and societies. Its usefulness suffers from the fact that the work is still so much in arrears (the latest volume covers 1922).

The German *Internationale Bibliographie der Zeitschriften-Literatur mit Einschluss von Sammelwerken und Zeitungen* [1157], Abteilung A, lists semi-annually about 50,000 articles from German periodicals, etc. (under subject, "Schlagwort," with author index); Abteilung B indexes a long list of non-German periodicals, etc. (entries under German "Schlagwörter"); Abteilung C is an index to book reviews. It is voluminous and comprehensive but difficult to use, because of the characteristically German system of arbitrary abbreviations and condensed style of printing, and because of the publication in semi-annual volumes, without cumulation.

There are other foreign indexes: the Dutch *Nijhoff's Index* [1159] and similar indexes for Belgium, Norway, and other countries (cf. Mudge [1040] and Schneider [1417]). Altogether there must be 6,000 or 8,000 periodicals currently indexed in these various publications.

The chief American news index is that of the *New York Times* [1158], beginning with an annual index for 1860 and 1863–1905, and resumed in a quarterly edition in 1913 (cf. Welland [1164]). This serves also as an approximate index to news in other papers, as did also the index to dates of the *Annual Literary Index* [1154]. The history of the latter (1892–1904) is an example of periodical "births, deaths, and changes": it ran from 1892 to 1904, changed title to *Annual Library Index* (1904–10), was in part absorbed by the *Readers' Guide* (see above), and in part (the date index) by the monthly *Index to Dates and Current Events*, 1911–13 (N. Y., Bowker, 1912–14, cumulated quarterly and semi-annually). The successors of this *Index* were the *Information Monthly* (also quarterly and annual) for 1915–16, and the more specialized *Business Digest* for 1917–24 (with several variations of title).

There are similar news indexes abroad: that of the London *Times* [1163], the German *Halbmonatliches Verzeichnis* (now included in Abteilung A of the *Internationale Bibliographie der Zeitschriftenliteratur* [1157]), etc.

PUBLICATIONS OF SOCIETIES, DISSERTATIONS, "FESTSCHRIFTEN"

Many publications of societies are included in bibliographies and indexes of periodicals, as their transactions at least are issued periodically. For non-serial publications, as well as general information, a special set of bibliographies is necessary. A comprehensive bibliography of society publications is the "Academies" volume of the British Museum catalogue [1375]—now much out of date (1885), but cf. various supplements to the B. M. catalogue under the word *Academies*.

There are now a number of year-books giving primarily information about learned societies and the like, but including mention of their regular publications—cf. especially *Minerva, Jahrbuch der gelehrten Welt* [1173] and *Index generalis* [1169]. The Carnegie Institution compiled a more detailed *Handbook of Learned Societies* in 1908 [1165], giving location, object, history, and publications (both serial and special) of societies. It omitted medical, agricultural, legal, patriotic, etc., associations, and, curiously, excluded also those observatories not forming parts of universities. Only the section on America (North and South, etc.) was published (the rest is on file at Library of Congress), and even the American section has got out of date since 1908. A year-book is needed. The *Yearbook of the Scientific and Learned Societies of Great Britain* [1176] is a satisfactory work, containing in its first volume (1884) historical information about the societies, and, in the later volumes, a record of meetings, publications, etc., arranged by subject.

Lasteyrie [1170] is a monumental bibliography, of French historical and archæological societies, as is, in the field of science, its companion piece, Deniker's *Bibliographie des travaux scientifiques* [1166]. These lists are arranged geographically by departments, then by towns, then by name of society. They still lack the projected author and subject indexes. The corresponding year-book is the annual list [1164.3] published by the French Ministry of Education. Our appendix includes similar titles for Germany, Italy, etc. Cf. further *Encyclopædia Britannica*, s. v. "Academies" and "Societies." There are many lists and indexes of the publications of individual learned societies, and many American universities publish current lists (in their Presidents' reports or otherwise), sometimes reporting "research in progress."

Theses, "programmes," etc., are published under the auspices of "academies" and listed in their individual bibliographies. These are too numerous and scattered to be followed systematically, but the student will have little difficulty in keeping informed through such lists as there are in different special subjects (cf. chaps. 3–6) and different countries (like Maire's lists for France [1771-72], the Library of Congress's list for America [1175], etc.), and more general works like the Bibliothèque Nationale's *Catalogue des dissertations et écrits académiques provenant des échanges* [1174]. The great importance of dissertations lies in their purpose to present new and original contributions to knowledge; also the widest possible knowledge of those recently published or in progress is the doctoral candidate's only safeguard against having his dissertation anticipated by that of some candidate abroad.

Memorial volumes ("Festschriften") and similar collections of works by many different authors have been the despair of librarians and bibliographers. Only the most exhaustive subject bibliographies have succeeded in gleaning from them all the articles pertinent. The name of the person or the occasion to which they are dedicated is only a very approximate guide to their content, and, as they appear with the utmost irregularity of time and place, no current index machinery has ever been set up. Some libraries make analytical entries for the most important articles—very few have attempted to do so completely—and there have been several projects (generally without result) of co-operative indexing by a group of libraries. It is particularly welcome news, therefore, on the eve of our "going to press" that an index of this "form class" of learned literature is in preparation by David J. Haykin [1168].

LISTS OF BOOKS NOTEWORTHY IN MATTERS OF EDITION AND PUBLICATION

These include such real or hypothetical categories as: first editions; standard, best, definitive editions; handy-volume editions; cheap editions; reprinted editions; limited editions; privately printed books; unfinished works; sequels, etc., etc. Most of these appeal chiefly to collectors, and the general student is apt to be more irritated than interested at finding that material in the content of which he is scientifically concerned has become subject to what often amounts to mere hard-headed business speculation rather than to large demands on the part of real lovers of the books (inside as well as outside). On the other hand, even the most intense research student cannot but have a certain sentimental interest in the first and rare editions of his favorite author. The non-bibliophile categories have their obvious uses. Consider, for example, what a boon a list of definitive editions would be to the beginning student of literature in any language; or consider the usefulness of the lists we do have of cheap text editions of our authors (Teubner, Tauchnitz, Everyman, etc.). Bibliographies of unfinished works sometimes save the student from a vain search for a concluding volume which does not exist (cf. app., for examples.)

LISTS OF BOOKS NOTEWORTHY IN PRODUCTION, MAKE-UP, ETC.

Many of the titles which might be enumerated here will be omitted, as the later historical chapters will necessarily include some mention of them (e. g., lists of manuscripts, block books, early printed books, illustrated books, books notable for their binding and decoration, etc.). For the remaining categories, a simple enumeration with a few examples will suffice: Books rare because of obscurity of place of printing; Books printed in no one place, e. g., "Books printed at sea"; Books printed by journeyman printers, etc.; *De luxe* editions in general; Books printed from special type, microscopic, handcut type, large type ("Books for tired eyes"); Books printed on special materials, fine paper, "large paper," vellum, etc.

Most of these are mere curiosities and useless to science (e. g. Books printed in two-point "fly's eye" type, i. e. about the height of the space between the printed lines in the average book), but they cannot be ignored, since an occasional reference will bring the student into this field (cf. app.).

LISTS OF BOOKS NOTEWORTHY FOR THEIR HISTORY, ASSOCIATIONS, ETC.

This category would include bibliographies of: Lost and imaginary books; Books accidentally destroyed (e. g., by fire, shipwreck, etc.); Suppressed, prohibited, expurgated books (by the author or by church or state); Unique copies; Chained books (interesting relics of old libraries and library administration); Association books (books owned by celebrities; books containing noteworthy book-plates, noteworthy autographs, or manuscript notes; etc.).

There are some very entertaining lists of lost books and imaginary books, e. g., one done by a Nuremberg dealer in the early eighteenth century included such titles as *Mémoire* "on the use of cats in the musical art and on the procedure of biting their tails so as to make them meow in concert" (published at "Ultremifasola," cf. Brunet's *Fantaisies bibliographiques*, Paris, 1864). On the other hand, some of the bibliographies of lost books may save you a vain search for "bibliographical ghosts" (cf. Cole [1054.1]).

Bethléem's *Romans à lire et romans à proscrire* [1045] is an interesting list of proscribed books—among them some of the best novels of the nineteenth-twentieth centuries. Particular attention should be called to Betten's treatise on the *Roman Index* [1046] and to Houben's *Verbotene Literatur* [1066] which "bids fair to be the standard authority on literary censorship . . . should exhaust all the German writers who have had to contend with the censor. . . . Hardly a German writer who, for one reason or another—in the great majority of cases for political heterodoxy—has not come under the censor's notice. In one or two cases, notably with Grillparzer's play 'Ottokars Glück und Ende,' official interference all but lost the work for posterity" (London *Times Literary Supplement*, Sept. 11, 1924).

BOOKS OF CURIOUS CONTENT

By this heading is meant books on some topic or point of view common to a variety of subjects, such as: Freak literature (sometimes more politely designated "miscellaneous speculations") which is common to most of the sciences; Erotica and Pornographica, which may, unfortunately, be represented in almost any division of literature and some divisions of science; Livres à clef, which differ from other "masked" literature in that real characters, instead of the author, are made to masquerade under fictitious names; Books which are rare or little known because of obscurity of topic (i. e., few people interested in it) or obscurity of language (i. e., few people read it); and, finally, a more important class of ephemeral publications of slight compass, which sometimes become of unexpected permanent scientific value, or, as their scientific value becomes less, of importance as historical source material, like pamphlets, tracts, chap books, broadsides, posters, etc. (cf. app.).

BOOKS FOR SPECIAL USE. "BEST BOOKS"

Finally, books on all subjects may be brought together in a bibliography of "best books" in general or of books useful for special people, for special purposes, or at special times, e. g.: Reference books (cf. chap. 8); Books for the blind, for children, for Catholics or other religious denominations, for foreigners or immigrants of various races; Books for hospitals, invalids, etc., for the poor, for prisoners, for schools, for spinsters, for Sunday-school libraries, for outcasts (the last year or two have produced several lists for use on a desert island, like Grant Overton's *Cargoes for Crusoes*); Books for reading on special occasions, like a recent list "for every hour of the day."

To the professional scholar, bibliographies of reference books (especially Mudge[1040]) are of importance secondary only to his subject bibliographies; but the other types of select lists embracing all subjects are of practical use to him only if they are extensive enough to be used for verification of titles, etc., as universal bibliographies are used. On the other hand, we are all general readers and "Books, we know, are almost innumerable; our hours for reading are, alas! very few" (Lubbock, *On the Pleasure of Reading*, N. Y., 1886). Lubbock's list of 100 best books is an interesting one and prompted a number of other similar attempts, e. g., von Möllendorff's *Die Weltliteratur* (Shanghai, 1894) (975 best books, with 137 starred as "Meister," and a comparative table arranged by languages —showing, for example, that Italy has contributed most to "Weltliteratur"), Eliot's-Five-foot bookshelf, etc. All such lists are interesting, of course, and as different as the tastes and interests of the compilers (cf. Aspinwall [1043]).

Except the international current list projected by the League of Nations [1067], the more modern bibliographies of "best books" are more or less concerned with the public library and the general reader. Sonnenschein [1081] is the standard long list of the 100,000 best available books in every department of science, art, and literature, with the dates of the first and last editions, etc. It is very deficient, however, in annotations or discussion, which would make it readable, indicate the basis of the selection, and tell the reader where or why he should begin. Very few of these lists of best books are universal (like Lubbock, Möllendorff, etc.); most of them are frankly limited to the language of the country in which they are published—the natural scope of a selection designed primarily for the general reader.

One of the most important national lists is the *A. L. A. Catalogue* [1183] (first published in 1893 under the title *A. L. A. Library*, 5000 *Volumes for a Popular Library*). According to the 1904 edition, it was designed to serve: (1) As a guide to bookbuyers whether for private or public libraries; (2) as a guide to readers; (3) as a manual to teach the younger and prompt the older librarians or booksellers; (4) to take the place of the printed catalogue in small libraries; (5) as a most convenient catalogue for private libraries; (6) as a check-list of books read. The 1926 edition is "an annotated basic list of 10,000 books," classified according to the "D. C.," and with index by author, title, and subject. This list is supplemented and kept up-to-date by the *Booklist* [1185], a monthly guide, giving carefully selected lists of recent publications in general literature, documents, and new editions of older works. It also is in classified arrangement since 1915. The annual

Booklist Books [1186] and the later editions of the *A. L. A. Catalog* are not, however, cumulations of the *Booklist*, but selections from these periodical selections.

Another series which should be mentioned is the *Standard Catalogue Series* [1202.1] now in process of publication by the H. W. Wilson Company, in sections, class by class. When completed, it is to be reissued in a single dictionary catalogue of some 10,000 titles. This is supplemented by the *Standard Catalogue Bimonthly*, cumulated annually in a volume of about 350 titles (selected and annotated with particular reference to the small public library).

For the general reader seriously tackling a programme of reading in an unfamiliar field, there is a group of guide-books or reading courses, chief among which, at the moment, is perhaps the A. L. A. *Reading with a Purpose, a Series of Reading Courses* [1184] (each in a different field and compiled by specially qualified scholars). Robertson's *Courses of Study* [1078] still deserves mention in spite of its unevenness and (in certain subjects) rationalistic bias. Many of the general works mentioned in previous chapters include excellent briefly annotated lists (e. g., Koopman [65]).

Among foreign national lists of best books, we include only a few examples which are useful, particularly to the student of foreign literature. Schneider [1417] recommends Loewe's *Kritische Bücherkunde zur deutschen Bildung* [1277]; the *Kleine Literaturführer,* [1274] published by Koehler and Volckmar, are a useful series of trade lists on various subjects; and the catalogue of *German Books* [1267] exhibited in New York and Chicago in 1925, though concerned specifically with publications of 1914–25, included enough older works to constitute a remarkably comprehensive survey of the classics which German scholars have contributed to every field of study and to illustrate the general superiority of German select lists as regards works of erudition.

For French books Fédern's *Répertoire bibliographique de la littérature française* [1254] is a well-known selective list (including, however, only books in print in 1913). For American readers and public libraries, the American Library Association has issued several select foreign-book lists, e. g., Josephson's *List of Swedish Books* 1314 (cf. further chap. 10).

More up to date than even the current lists already mentioned are the reviews in general periodicals (cf. chap. 11). Book-reviewing finds a place in all newspapers and magazines that give any space to literature. A proper review is (*a*) descriptive of the book in both content and make-up; (*b*) critical—tells what the author set out to do, how far he did it, and wherein he failed; (*c*) an original contribution to the subject, corrective, supplementary, or incidental to the book reviewed. But there are few such, and reviewing is so much subject to the perfunctoriness of "the day's work," personal opinion, literary cliques and fads, etc., that the just estimate of a book is apt to be a composite of several different reviews (cf. Canby 1054, Pearson 1072.1, Slosson 1080). The current bibliographies and abstracts of reviews are therefore very useful both for locating and for comparing them. The *Book Review Digest* 1431 indexes reviews from over fifty American and English periodicals, with brief quotations and indication of the extent of the review. It is a monthly publication, cumulated semi-annually, annually, and, in the 1921 annual, for five years (1917–21). Like the *Booklist*, it is concerned primarily for the general reader and the public library; comparatively little attention is paid to professional journals; from these the specialist usually must compile for himself. The *Internationale Bibliographie der Zeitschriftenliteratur* 1157, Abteilung C, is much more comprehensive, indexing, annually, reviews in about 3,000 German and some foreign periodicals, both popular and learned. On the other hand, it is merely an index and does not quote or abstract.

Lists of best books and book reviews are of most practical use in the student's selection for study, bibliography, and purchase, and our remarks on selection in chaps. 2 and 7 should be further supplemented by reference to more systematic and detailed works on "book selection." Bascom 1, for example, enumerates 15 general principles of selection which should be followed in purchasing for libraries. More useful for our purposes is her paragraph on "tests of books for information": (1) The direct fitness of the subject-matter. (2)

The consideration of the scope—is it a comprehensive and general or a detailed specific treatise? (3) Treatment—popular or scientific, polemic or judicial? (4) Authority—i. e., the author's qualifications and sources. (An author may be above criticism and may still, for one reason or another, make use of only secondary, instead of original, source material; and his personality and tendency to bias are of as much importance as his reputation.) (5) Date—is the book the earliest, the classic, or the latest? (6) General arrangement and content. (Many good books of encyclopædic character are best left unpurchased by the poor scholar because they lack adequate index, bibliography, maps, or illustrations; or because they are not arranged conveniently for reference purposes.) (7) Physical make-up—format, typography, quality of paper, binding, etc. (questions of the book's durability, the health of the reader's eyes, etc.). (Cf. also McColvin [1071] and Williams [1085].)

CHAPTER X

NATIONAL BIBLIOGRAPHIES

In looking up bibliographical information or compiling a bibliography, the specialist will consult first the subject bibliographies in his own field; outside his own field he will consult the library subject catalogue, the general reference works which are a part of his general bibliographical equipment, bibliographies and indexes of periodicals, government publications, etc. The other special bibliographies, and the national and universal bibliographies with which we are concerned in this and the following chapter are chiefly useful: (1) as a makeshift—though a poor one—in case of a subject lacking adequate bibliographical organization; (2) in getting hold of material germane to the topic of the special study, but more general, and of material included in more general works (just as you can scarcely ignore the encyclopædia article covering or touching upon your topic); (3) for verifying references in cases where subject sources are incomplete; (4) for exhaustiveness and up-to-dateness in compiling bibliographies, since retrospective subject bibliographies often neglect the older literature (fifteenth to seventeenth centuries) and even the review journals are far less prompt and systematic than the current national trade bibliographies; (5) for additional details of information—subject bibliographies are all too often incomplete in matters of imprint, collation, etc., and even library catalogues do not give price.

National bibliography is as difficult to define and as loosely used as most other terms in enumerative bibliography. It means, first of all, lists of books published in a given country. But the definition has to be extended to include the books produced by the natives of a given country at home or abroad—e. g., the works of German authors and German presses in America may appear in both German and American bibliographies. Further, in the case of older literature, *Americana*, for example, includes not only books written or published in America, but all the rare and early books about America; and, even in the case of modern literature, the bibliographies of African and Oriental countries consist largely, or entirely, of books published elsewhere than in those countries, in other than the languages of those countries, and by other than native authors.

The Library of Congress classification includes under the national bibliography of a country the bibliography of: (1) Books printed and published in that country; (2) Books by native or resident authors; (3) Books written in the language of that country by foreigners (unless the foreigners are all of one foreign country—e. g., French-Canadian literature classes under Canada); (4) The country as subject: (*a*) general, (*b*) literature, (*c*) biography, (*d*) history, (*e*) description. Bibliographical works on other subjects (art, music, agriculture, geology, etc.) are clearly enough distinguished so that they may be classed by subject, with or without subdivision by country.

Because of our emphasis on subject bibliography as the specialist's first concern, we have preferred the subject to the national classification for bibliographies of history, literature, etc.—in fact, we have gone so far as to consider practically all Oriental bibliography as the field of the Orientalist rather than of the national bibliographer. Nevertheless, the student of the history or the literature of a country must not lose sight of the fact that the broad interpretation of his subject would include the whole civilization and book-production of the country. In this chapter, then, national bibliography is concerned (1) with the book products of a given country, and (2) with books about the country only in so far as the works cited are too general for classification under subject bibliography.

Existing compilations of national bibliography are of three sources: commercial (associations of book-dealers and publishers); governmental (e. g., copyright lists, lists of deposits in national libraries required by law); and professional (i. e., the work of bibliographers). But they begin and end for the most part in trade bibliographies. Indeed, all bibliographies were, in the beginning, either owners' inventories or dealers' advertisements, and in case of printed books the dealers' lists seem to have come first. The prototypes of these were the posters which late mediæval copyists and manuscript dealers fastened to their door-posts or to those of the local university, those of students' lodging-houses, etc. The earliest printed book advertisement known is that of Heinrich Eggstein, of Strassburg, issued in 1466 (Updike [1571])—fifteen years or so later than the first printed book. Schoeffer's was another famous fifteenth-century list (cf. chap. 13). The first newspaper advertisement known (1512) was, quite properly, a book notice. Other commodities, like tea, coffee, and tobacco, soon intruded on the book's advertising space, and nowadays the newspaper advertisement of a book is one of the most expensive and least effective methods of book publicity (one copy of a book is usually sufficient for an individual, but he may go on buying the same brand of soap indefinitely) (cf. Unwin [85]).

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With the beginning of the book fairs ("Buchmesse") at Frankfurt and, later, at Leipsic, more comprehensive catalogues came into being. The first of these was that of Georg Willer, of Augsburg (1564), who kept in stock not only his own and other German-printed books, but also books of leading foreign printers (cf. Growoll [1233]). Willer's sons and successors continued their "Messkatalog" until 1749. The series of Frankfurt "Messkatalogen" ran from 1594 to 1749, that of Leipsic from 1594 to 1860. Willer's catalogues were cumulated in 1592 by Nicolaus Basse (or Bassæus). In so far as these lists included books by foreign printers, they may be classed as universal (cf. chap. 11) rather than national bibliographies, and, in any case, their interest is now chiefly historical, as they were the starting-point of later bibliographical compilations of all sorts (cf. the list in Petzholdt [1416]).

The material they contain is now more conveniently accessible in later compilations. The most extensive bibliography of German and other fifteenth-century books will be found in the *Gesamtkatalog der Wiegendrucke* [1529] when it is completed. Meanwhile the various other general, international, and national lists (cf. chap. 13) supplement one another. Panzer's *Annalen* 1552, which has long been a chief source for titles of German incunabula, will continue to be useful for the years 1501–26. Otherwise, the bibliography of the sixteenth and seventeenth centuries is very scattered and incomplete, and our sources for Germany, as well as for other countries, are the international lists (cf. chap. 11), although Schneider 1417 and Childs 1401 list a number of titles which are occasionally useful.

German national bibliography really begins with the year 1700 (Heinsius 1270). The first publication of Heinsius appeared in 1793–98 (4 v.), but was compiled from the *Messkatalogen* for the whole eighteenth century. The second edition (1812) covered the period 1700–1810, and supplements were issued at intervals of approximately five years until 1894, when it succumbed to the rivalry of two other, more accurate and complete, current lists—Hinrichs and Kayser.

The Hinrichs publications began in 1798 with a *Halbjahrsverzeichnis der im deutschen Buchhandel erschienenen Bücher, Zeitschriften, Landkarten* 1269, appearing at Easter time and in the autumn, like the *Messkatalogen.* It was the only German list that gave full titles of books; it was divided into two sections (part 1, list by author and title; part 2, index). After 1890 there were indexes by "Stichwort" (catchword title) and by class (130 divisions). Hinrichs was the official publisher for the Börsenverein until 1916, but since then the Börsenverein has been its own publisher. Among the changes introduced is the omission of the classified index.

The second Hinrichs publication was the *Wöchentliches Verzeichnis* 1282, begun (1836) by the firm of Brockhaus under the title *Allgemeine Bibliographie für Deutschland* and continued by Hinrichs from 1842. Brockhaus had been preceded in turn by the *Bibliographie für Deutschland* (1826–35). The whole weekly series, therefore, runs from 1826 to date. The *Wöchentliches Verzeichnis* is one of the most useful trade lists for the specialist, since it is a classified list, with an index by author and catchword title which is cumulated monthly. There is also a section of announcements of forthcoming books. A library edition (1921 ff.) on thin paper and printed on one side, intended to be clipped and pasted in library catalogues, has not been found satisfactory for the purpose because of the inclusion of information not wanted by librarians, the exclusion of information wanted by them, and certain inconsistencies with library catalogue rules as regards entry-word, etc. A third Hinrichs series was the *Vierteljahrskatalog*, which ran from 1846 to 1914.

The Hinrichs cumulation for longer periods was begun in Kirchhoff's *Bücherkatalog* (2 v., covering 1851–61) and continued until 1913 by Hinrichs's *Katalog* or *Fünfjahrs-Katalog* [1271] (since it generally covered five-year periods).

Kayser's *Vollständiges Bücher-Lexicon* [1273] began (1834–36) with a compilation covering the years 1750–1832, and was issued generally every five years until 1911 (the last issue covering 1907–10).

These three great "Mehrjahrsverzeichnisse" were primarily author lists (except entries under such general titles as "Handbuch," "Wörterbuch," etc.). *Hinrichs* and *Kayser* had several volumes of indexes appearing at irregular intervals and generally covering several volumes of the author lists, the earlier index volumes in classified arrangement, the later by "Schlagwort" (subject) and "Stichwort" (catchword title). Georg's *Schlagwortkatalog* [1266] served as an index to all of them. It is remarkable that all three rival publications could continue successfully for so long. While their periodicity was of the same length, they did not all appear in the same years or cover the same years (e. g., one instalment of Hinrichs covered publications of the years 1875–79; the corresponding volume of Hinrichs, 1876–80; and that of Kayser, 1877–82).

The publications now current under the auspices of the Börsenverein are: (1) *Deutsches Bücherverzeichnis* [1265] replacing the old Heinsius, Kayser, and the Hinrichs *Fünfjahrskatalog*. The first instalment (1916) covered the years 1911–14, with catchword-title and subject index (published in 1920). (2) *Halbjahrsverzeichnis* [1269]. (3) *Wöchentliches Verzeichnis* [1282]. (4) *Börsenblatt für den deutschen Buchhändler* [1261] (1834– , daily since 1866). With the use of this group of periodicals no one need miss a German publication in his field because it has taken a year to get through to the reviewer's hands or has not been sent to a scientific periodical for review at all.

In the selection of books for purchase one must often prefer books which are still in print (i. e., still obtainable immediately from the publisher); and the catalogues of individual publishers are thus a necessary supplement to the periodical national trade lists. The union of such catalogues in one big volume is a convenient substitute for a scattered file of separate lists. The earlier *Gesamt-Verlags-Katalog des deutschen Buchhandels* 1278.1 (1881–94) is now partially replaced by the selective but very extensive annual *Deutscher Literaturkatalog* 1264 of books in print, designed for the wholesale and retail book-dealers but obviously of more general usefulness. The excellent selective list printed in connection with the exhibit of German books in Chicago and New York in 1924 1267 should be mentioned again, as well as the *Kleine Literaturführer* 1274 and the various *Bücherverzeichnisse* for various special subjects issued by Koehler and Volckmar. There are a number of other selective periodical lists of books likely to be in most frequent demand, which are not limited to the publications of a single firm—the annual *Jahresberichte des literarischen Zentralblattes* 1272 (a classed list) and the monthly *Das deutsche Buch* 1263 may serve as examples.

Other partial bibliographies for Germany are the *Wissenschaftliche Forschungsberichte* 1281 (covering a certain period of time, 1914–21), Brieger 1262 (first editions), the cards and accessions lists printed for the Prussian libraries (cf. chap. 11), Loewe 1277 ("best books"), Thelert's 1279 supplement to Heinsius, Hinrichs, and Kayser (especially for theses and other books not published in the trade), etc.

In our chapters on subject bibliography and reference books, we had occasion to mention histories of scholarship in special fields, biographical and biobibliographical dictionaries, yearbooks, etc., and these also belong in national bibliography. Histories of the national literature of any country include literary and quasi-literary works of the learned writer as well as those of the litterateur. The best of them will indicate the dates of the first and of the most important editions, and will give a selective list of works about the authors treated. Unfortunately such bibliographical information is generally secondary to the historical and literary criticism, and is accordingly defective and sometimes incorrect in detail. Nevertheless, the literary history is often the readiest if not the best starting-point for the "personal" bibliography (e. g., for Germany, Scherer [695], Goedeke [692], etc.).

Biobibliographical works are similarly useful, and usually more convenient to consult for bibliographical information. The *Allgemeine deutsche Biographie* [1259] includes 26,300 biographies (Schneider [1417]). Various supplements of this have been published and there are longer articles in the current *Biographisches Jahrbuch und deutscher Nekrolog.* Briefer, more up-to-date, and easier of consultation are *Kürschners deutscher Literatur-kalender* [1276], *Kürschners deutscher Gelehrten-kalender* [1275], and *Wer ist's* [1280].

Arnold's *Allgemeine Bücherkunde zur neueren deutschen Literaturgeschichte* [690] has been described (chap. 5) as a bibliography of German national bibliographies, since it interprets "Literaturgeschichte" in the broad sense. It must be supplemented, however, by more detailed bibliographies of subjects other than the belles-lettres and, for the trade bibliography, by such works as Schneider [1417] (cf. chap. 11).

German bibliography is older than that of other countries, includes a far greater number of books (e. g., *Publishers' Weekly,* January 22, 1927, gives the book-production figures for 1926: Germany 31,595, France 14,943, England 13,302, U. S. 9,574, etc.), and is, on the whole, better organized than that of any other country—especially since the Börsenverein has undertaken to collect (in the Deutsche Bücherei) and list German publications not appearing in the trade (cf. Minde-Pouet [1278]).

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English and American bibliography, on the other hand, are also supremely important, in view of the fact that English is spoken more than any other Occidental language (Schneider's [1417] approximate figures for 1920–21 are: English-speaking, 170 millions; Spanish, 90 millions; German, 71 millions;

French, 39 millions), and the fact that recent English and American bibliographical works are excelled by none in thoroughness and in convenience of use.

The earliest example of a trade catalogue in England is Andrew Maunsell's *Catalogue of English Printed Books* (1595), which seems to have been patterned after the *Messkatalogen*, as were also the "Term Catalogues" (Arber [1241]), published at the Hilary, Easter, Trinity, and Michaelmas terms (the four law terms) from 1668 to 1709, and containing about 20,000 titles in the forty-one years (cf. Growoll [1233]). There were several abortive attempts to organize a trade journal—e. g., the earliest, *Mercurius librarius*, 1680 (the same title as the 1668–70 series of *Term Catalogues*), but it was not until nearly a century later (1773) that a regular permanent series, the *London Catalogue* [1236] began. This appeared at various intervals, with various changes of name, until 1855, covering the years 1700–1855. The chief publishers of the *London Catalogue* were William Bent, Robert Bent, Thomas Hodgson. William Bent also began (1802) a monthly *Literary Advertiser* which continued until 1860, when it was absorbed by Joseph Whitaker in the *Bookseller* [1230], which includes a monthly classified list of books.

In 1837 London publishers combined to found the *Publishers' Circular* [1239]. This includes articles, news, and lists of new books. The publication is now a weekly, and the weekly lists are reprinted in a combined monthly list.

Sampson Low, first editor and then proprietor of the *Publishers' Circular*, also began the publication in 1836 of what is now known as the *English Catalogue* (earlier titles were a *Catalogue of Books Published in the United Kingdom during the Year* 1835 [etc.], and *The British Catalogue of Books*—1853–60). In 1860 it absorbed the *London Catalogue*. The *English Catalogue* [1232] is issued in two series: (1) The annual series covering the years 1835 to date (the volume-numbering beginning with the year 1836 and not including the *Catalogue of Books* published during 1835); and (2) a series appearing at intervals of several years (now quinquennial) and replacing, in each issue, several volumes of the annual series. A supplement published in 1914 covered the years 1801–36 which had not been included in the previous annual or quinquennial volumes. Separate "subject" (i. e., catchword-title) index volumes were published for the four volumes covering 1858–93; later volumes include authors and titles in one alphabet.

Recently (1926) Whitaker (already known as the publisher of the *Bookseller*, *Whitaker's Almanac*, etc.) began a cumulative quarterly list [1243], perhaps under the influence of the cumulative methods of the H. W. Wilson Company, but, unlike them, arranged in classified order with author and title index, instead of in a single, "dictionary-style" combined list of authors, titles, and subjects.

The process of verifying the title of an English work from these various trade bibliographies is somewhat as follows:

(1) For publications of the last week, the *Publishers' Circular* weekly list (author list).

(2) For publications of the last month, the *Publishers' Circular* monthly list (author) or the *Bookseller* monthly list (classified, with index by author and title).

(3) For the last quarter (beginning 1926), Whitaker's *Cumulative List* (classified, with index by author and title).

(4) For the last year, Whitaker, beginning 1926 (arranged like the quarterly); or the *English Catalogue* annual (author and catchword-title).

(5) The volumes of the *English Catalogue* corresponding to the years inclusive: 1801–36, 1835–63, 1863–72, 1872–80, 1881–89, 1890–97, 1898–1900, 1901–05, 1906–10, 1911–15, 1916–20, 1921–26, etc. (the volumes for 1801–36 and 1890–97 ff. arranged by author and title, the others by author only, with separate volumes of title indexes).

(6) For the eighteenth century, "the most obscure of any period of English bibliography" (Peddie [1178]), the *London Catalogue* (1773–)—"but these catalogues do not give the date of publication and are of very little value" (Peddie), although they "practically form the basis of modern English book-trade bibliography" (Growoll [1233]). Cf. also retrospective bibliographies, Watt [1242], Lowndes [1237], etc.

(7) For the years 1668–1709, the *Term Catalogues*, originally

edited by John Stackey and Robert Clavell (members of the Company of Stationers) and re-edited by Edward Arber [1241]. Arber's preface should be read for its comments on the errors in the original text and on the numerous categories of books not included, although "after every possible deduction has been made, this Contemporary Bibliography has no equal in any European language of its period."

The Company of Stationers' *Register*, kept up for over three hundred years, includes "the most singular and most authoritative contemporary List of Books ever preserved in any nation" (Arber [1235]). Arber's *Transcript* (for 1556–1640) is continued to 1708 by Eyre and Plomer [1235]. "At no time was the *Register* complete, for in its inception it was simply a record of the property of members of the Stationers' Company . . . and it does not include publications issued under . . . Royal grants" (Eyre).

In a sense, the *Term Catalogues* and the *Transcript* of the Stationers' Register are, in their present printed form, largely the work of the scholar-editor. Duff [1424] has compiled an incunabulum bibliography (cf. also the general lists of incunabula, chap. 13 and app.); the Bibliographical Society has published *Handlists of Books Printed by London Printers*, 1501–56 [1425]; and the whole period from Caxton to 1640 has been separately catalogued by a number of libraries (British Museum, Cambridge University, John Rylands Library, etc., and, in America, the Newberry Library, the New York Public Library (in its *Bulletin*, 1925), and the Huntington Library [1234]—the last is to be a union catalogue in that its own holdings of English books of this period will be supplemented by the inclusion of titles in other American libraries). The Bibliographical Society (British) has just issued a very nearly complete short-title check-list for this period [1425].

The greatest single source for English books of all periods is, of course, the catalogue of the British Museum [1375]. Watt's *Bibliotheca britannica* [1242] was designed "as a universal catalogue of all the authors with which this country is acquainted," but is primarily concerned with English books. It is rarely consulted even to verify titles, but is a noteworthy monument of biobibliographical work, including upward of 40,000 authors, with lists of their works and brief biographical information, and a minute subject index. The most extensive bibliography of noteworthy ("rare, curious, and useful") English books is Lowndes[1237], which lists some 50,000 titles and is still one of the most used English bibliographies. The collector of the rare and curious will, however, find De Ricci's *Guide*[1190] better suited to present-day tastes in collecting and more up-to-date and reliable for the 2,000 or 3,000 titles selected (its limited scope lessens its value to students in general).

The *Cambridge History of English Literature*[671] is one of the foremost literary histories and includes many bibliographies, though the student must often refer to other sources for full descriptions of the titles listed. Allibone's *Critical Dictionary*[1179] is a biobibliographical dictionary which is still in frequent reference use; it claims to include every author listed by Watt and several other sources (over 43,000 in all, with subject indexes), and to improve upon its sources in accuracy and extent of biographical and bibliographical information, as well as in the inclusion of expert critical estimates. However, "it is not entirely accurate and so must often be checked, for important points, by reference to some other authority" (Mudge[1040]).

Of the more general biographical dictionaries which include bibliographical information, the *Dictionary of National Biography*[1231] is often cited as a model, and we have found its *Index and Epitome* volume one of the most convenient and satisfactory bibliographical reference books. Several supplementary volumes have been issued; and some of its omissions, as well as notices of later celebrities, have been listed in Boase's *Modern English Biography . . . of Persons Who Died since* 1850[1229], in *Who Was Who*, containing the "biographies of those who died during the period 1897–1916"[1244] and the current volumes of *Who's Who*[1245], *Who's Who in Literature*[1246], etc.

The primary usefulness of all these English bibliographies is for the verification of titles and the study of an author's works ("personal" bibliography). The student who wishes to compile a bibliography on a special subject or to bring up to date a given subject bibliography will find less help here than in the corresponding German classified lists. For the periods covered, the *Subject Indexes of the British Museum* 1375, the *London Library* 1382, etc., are very useful. National encyclopædias and year-books do for subjects something of the same sort as biographical dictionaries and year-books do for authors, but with much less full and systematic attention to bibliography. Of the current trade bibliographies only those of the *Bookseller* and *Whitaker's Cumulative Booklist* are classified.

On the other hand, information as to what books are in print, their present prices, what titles have appeared in some important publishers' series, etc., is more readily available in the English *Reference Catalogue of Current Literature* 1240 (published at intervals of three to five years since 1874) than anywhere else. This consists of different publishers' catalogues bound together in immense volumes, like the American *Publishers' Trade List Annual*, but with a very useful index by authors and titles.

UNITED STATES

The first title in American book-trade bibliography is *A Catalogue of All the Books Printed in the United States, with the Prices and Places Where Published Annexed*, Boston, 1804. It included, however, only 1,338 books and the announced plan of publishing a new edition every two years was not carried out. This catalogue is now a rarity—it is said that there are only four copies in existence. It has been reprinted in Growoll's *Booktrade Bibliography in the United States* 1193 (now also scarce). A consecutive series begins with Roorbach's *Bibliotheca Americana* 1200, published in 1852–61 but covering retrospectively from 1820 to 1861. This is continued by Kelly's *American Catalogue* 1195 (2 vols., covering 1861–71). This ceased publication in 1871 and its place was not immediately filled.

In 1872 the association of publishers began the *Publishers' Weekly* 1198, and in 1881 the *American Catalogue* 1180. (As the director of these was a German-American, Schneider asserts, perhaps not unreasonably, that our national bibliography was "made in Germany.") The first *American Catalogue* listed not merely the books published in 1876 but also books still in print at that time, which reduces the five-year gap between it and Kelly's last volume. The second series covered 1876–84, the third 1884–90, and so on down to 1910. From 1887 to 1911 the *Annual American Catalogue*[1180] was a third publication of the same organization (covering publications of the years 1886–1910).

The collection of publishers' catalogues in the *Publishers' Trade List Annual*[1197] (1873–   ) was an American invention, and is superior to its imitator, the British *Reference Catalogue,* in that it appears annually, but it lacks index supplements (the publication of these is under consideration at the present time).

All these periodical publications, except the *Publishers' Weekly* and *Publishers' Trade List Annual,* have been superseded by the publications of the H. W. Wilson Company. Though these publications may now be classed as the work of a bibliographical and indexing corporation rather than as instruments of the publishers, their beginning was prompted by Mr. Wilson's difficulties as a book-dealer in identifying a book when a customer would mention "the author, the title, or the publisher—never all three"[1208]. He, therefore, undertook a monthly *Cumulative Book Index,* 1898[1189], combining the lists of the several issues of the *Publishers' Weekly,* arranging them by author, title, and subject (all in one alphabet since the middle of the year 1898). This is now published monthly (except August) in dictionary-catalogue style and cumulated annually. In 1900 Wilson published the first edition of the *United States Catalog; Books in Print,* 1899[1206] (compiled from as many "publishers' catalogues as could be brought together" and consisting of author and title lists). Subsequent editions followed the dictionary arrangement of the *Cumulative Book Index,* of which they are cumulations; and the 1912 edition included foreign importations handled by some American firms, publications of universities, societies, and a certain number of government and private publications. Also books that were listed in the monthly index after 1906 but were out of print in 1912 were still listed (marked *o. p.*). Supplements on the same plan were published in 1918 (covering 1912–17), 1921 (for Jan., 1918–June, 1921), and 1924.

Thus, since 1903, the *U. S. Catalogue* and *Cumulative Book Index* form a continuous and fairly complete list of American books. Knowing the date of publication of a book, the student may locate it here immediately, by author, title, or subject. If the imprint date is not known, he may still locate it in very short time by reference, in order, to the *U. S. Catalog* 1912, the permanent supplements of 1918, 1921, and 1924, the annual supplements for 1924–27, and the subsequent quarterly cumulations and monthly issues of the *Cumulative Book Index*.

For the keeping up-to-date on the publications in a given field, the student might prefer the classified arrangement of Whitaker and other foreign lists rather than having to look under a number of minute subjects with the likelihood of failing to look under some of the topics within his field. However, the student probably, and the librarian and bookseller certainly, will find this more than offset by the greater rapidity of consultation on the more frequent occasions when the inquiry concerns a specific topic or title.

For titles earlier than 1906 reference should be made to the two earlier editions of the *U. S. Catalog* and the *American Catalog*.

For the period since 1891 we have an official government source for copyrighted books, many of which do not appear in the book-trade and some of which may therefore escape the notice of the compilers of the trade lists. The U. S. Copyright Office *Catalogue of Copyright Entries* [1205] appears in four parts: part 1, group 1 (books) is printed and distributed to depository libraries every other day; group 2 (pamphlets, dramatic compositions, maps, motion-pictures, etc.) monthly; part 2 (periodicals and newspapers) quarterly; part 3 (musical compositions) monthly; part 4 (works of art, photographs, etc.) quarterly. All are indexed annually.

American bibliography of the earlier part of the nineteenth century is in incomplete and fragmentary state, like English bibliography of the eighteenth century and Continental bibliography of the sixteenth and seventeenth centuries. Roorbach (covering 1820–61), Kelly (for 1861–71), Trübner's retrospective *Bibliographical Guide* [1204] (1859) and periodical *American and Oriental Literary Record* [1203] (1865–91), and other occasional trade catalogues of the century are wofully incomplete, both in the number of books listed and in bibliographical description. H. H. B. Meyer is gradually building up at the Library of Congress a list of American publications of this period; Library of Congress holdings serve as a nucleus to which may be added titles from these sources, from Sabin (see below), from various subject and special bibliographies, and from hundreds of American libraries which have special collections of the products of local presses.

The earliest period of American bibliography is destined to be very well covered by Evans [1191]. This was planned to cover the years 1639–1820, chronologically year by year; and, between 1903 and 1914, the first eight volumes (1639–1792) were published, in excellent (rather expensive) typographic style and of a high order of bibliographical accuracy and detail. The occasional indications of auction values are now, of course, out-of-date, but the indications of libraries possessing copies of the books are still a very valuable feature. In 1914 the publication was suspended, but in 1924, through the efforts of a committee of the American Library Association, enough subscribers were found so that the work might continue, and, in 1926, the ninth volume appeared (covering 1793–94). There seems to be some doubt whether the continuation will extend to 1820, as originally planned, or will terminate with 1800. The general student may not agree in general with Evans's principle, "the fact first in importance in bibliographical research is the date—always the date," but, in the particular period dealt with, both practical considerations of procedure in compilation and the historical associations of our early press fully justify the plan followed; and the addition in each volume of indexes of authors, classes of literature, and printers and publishers, makes the work useful from every point of view.

The other type of national bibliography, which deals with books about the country rather than merely those by native authors, etc., has no better example than Sabin's *Dictionary of*

Books Relating to America 1201. This gives full bibliographical description, many contents notes, and indications of "certain public libraries in which the books may be consulted." After the publication of nineteen volumes and two instalments of the twentieth (1867–92) it ceased publication at the end of the name *Smith, H. H.* Thanks to help from the Carnegie Corporation and other friends, the Bibliographical Society of America, with Wilberforce Eames as editor, has begun publication (Aug., 1927) of the continuation. The first new instalment carries the alphabet through *Smith, John*, and the sequel is in progress, although further subsidies will be required to finance the work to completion.

The published catalogues or card files of large libraries, both in America and abroad, are important sources for American publications and "Americana"—above all, of course, the Library of Congress, but also a number of other large libraries and special collections, e. g., the John Carter Brown Library of Brown University 1187, the Huntington Library, the William L. Clements collection at the University of Michigan 1188, etc., and, in Europe, the British Museum and the Bibliothèque Nationale 1196, etc.

In the field of literary history, probably the *Cambridge History of American Literature* 670 is the best for bibliographical reference purposes at the present time. *Appleton's* and the *National Cyclopedia of American Biography* are usually referred to, but are much inferior to the corresponding English *Dictionary of National Biography*. We may, however, look forward to a thoroughly scholarly work under the auspices of the American Historical Association 1182. We have a national biennial *Who's Who in America* 1207 and a variety of local, professional, and other special biographical or biobibliographical year-books.

In the field of special bibliographies the *A. L. A. Catalog* 1183 has already been mentioned as an example of the type of "best books," and De Ricci 1190 as a guide to the collector. The collection and study of Americana probably ranks foremost in American private libraries, and many excellent trade catalogues are published by Maggs, Hiersemann, etc., and American dealers like Goodspeed, of Boston, etc. American first editions are a still more special field of great interest (cf. Hopkins [1194] and the series of lists in the *Publishers' Weekly* of the last couple of years, which include, among the well-known authors, a number of rather unlikely objects of the collector's interest).

As very different examples of periodicals devoted to the study and bibliography of Americana, we have listed Heartman's *American Collector* [1181] and the *Journal de la Société des Americanistes de Paris* [1202].

The best general work or manual on American bibliography is the forthcoming volume of the *Papers* of the Bibliographical Society of America [1427] (1926 volume), which will include articles by Meyer and other specialists in the field. Older but important bibliographies of American bibliography are Growoll [1198] and Ford [1192].

CANADA

The organization of Canadian bibliography is still in the making. W. R. Haight began a *Canadian Catalogue of Books* [1221] in 1896, intended to cover the whole period from 1767 to 1895. Part one included 1,006 titles, arranged by authors A–Z and indexed by title; the other issues planned would presumably have supplemented this and each other until it would have been possible to combine all in one alphabet. No other parts appeared, however; and the *Annual Catalogue*, designed to serve as supplements for the years 1896 ff., ceased publication after two years. This is the only attempt at a trade bibliography. Burpee's bibliography for the year 1901 [1210] was prepared for the Royal Society of Canada, "as an example . . . of what might be accomplished by the Society." Again, in 1923, an annual *Canadian Catalogue* was begun by the Toronto Public Library [1217] (the first volume covering 1921–22). A longer and more continuous series of annual lists is that of Canadian copyright entries, included in the *Report of the Joint Librarians* of the Canadian Parliament from 1871 to 1900 [1213], and in the *Canadian Patent Office Record* (monthly) since 1888 [1214].

For the older period, in addition to Haight, reference should be made to the *Catalogue of the Library of Parliament* (1857–58) [1212], the *Catalogue of the Public Archives* 1611–1687 [1211], the Toronto Public Library's catalogue of *Books and Pamphlets Published in Canada, up to the Year* 1837 [1225], and to the printed cards issued by the Library of Queen's University, Kingston, for books printed in Canada or Newfoundland prior to 1866 (as well as for current Kingston publications and certain other categories).

Gagnon's catalogue of his private library [1219] is of somewhat more special type, but is "by far the most interesting Canadian bibliography" (Burpee [1209]) (now a part of the Montreal Public Library). An important local bibliography of the province of Quebec is Dionne's *Inventaire* [1218] (French and English books printed in Quebec and books about Quebec in general).

Canadian literary history and biobibliography are well exemplified by Morgan's *Bibliotheca canadensis* [1223] and *Canadian Men and Women of the Time* [1224], Wallace's *Dictionary of Canadian Biography* [1226] and the *Who's Who in Canada* [1227].

Among periodicals which include current lists and reviews, we may mention the *Canadian Bookman* [1216] and the *Canadian Annual Review of Public Affairs* [1215].

For more complete surveys of Canadian bibliographies, cf. Burpee's article [1209], Moir's *List* [1222], Geddes's *Bibliographical Outline of French-Canadian Literature* [1220], and the forthcoming volume (for 1927) of the *Papers* of the Bibliographical Society of America [1427].

FRANCE

From this discussion of German national bibliography (which is the oldest and most complete) and of English and American (which are of most immediate usefulness) the student will have been sufficiently prepared for the variety of scope, method, and reliability of national bibliographies, so that our enumeration for other countries may be even less complete.

The earliest periodical bibliography in France ran from 1645–54 under the alternating titles *Bibliographia parisina* and *Bibliographia gallica universalis* (cf. Delalain [1253]). Other beginnings are described by Delalain and articles to which he refers, but the first one of any duration was the *Bibliographie de la France* 1247 (1811–). Its origin somewhat resembles that of the *Register* of the Stationers' Company of London, since it was founded by Napoleon as an instrument of censorship. Although the publication was taken over by the Cercle de la Librairie, it still has a semi-official character, since its lists are based on those of the books deposited by law with the Ministry of the Interior. As issued now (weekly) it consists of a "Bibliographie," "Chronique" (news, brief articles, etc.), and a "Feuilleton" (publishers' announcements). The arrangement of the "Bibliographie" is alphabetical by author, and there are annual indexes by author and subject class.

An extensive selected list of books most likely to be in demand has been issued by H. Le Soudier since 1896, with the title *Mémorial de la librairie française* 1255. This appeared weekly, in classified arrangement, with a monthly classified index (also issued separately as *Bulletin mensuel des nouveaux publications françaises*) and an annual dictionary index (author, title, and subject). Since 1915 only the monthly issues have appeared.

Another Le Soudier publication is the *Bibliographie française* 1248. The first series (1896, 2d ed. 1900) was a collection of publishers' catalogues resembling our *Publishers' Trade List Annual.* Series 2 (1908–11, covering 1900–09) was a dictionary catalogue made up from the annual *Mémorial de la librairie française*, and, for the years following 1909, supplemented by the same annuals.

Another of the selective trade catalogues is the *Catalogue mensuel de la librairie française* 1252 begun by Lorenz (1876) and continued by Jordell. This is arranged in three parts—authors, titles, and subjects—and, like Le Soudier's *Bulletin* has been much used because of the extent of its selected lists and because it has been distributed gratis by French dealers. Still another is the *Livres du mois* 1254.2.

The best-known French trade bibliography is another Lorenz-Jordell publication (now published by Édouard Champion, under the editorship of Henri Stein)—the *Catalogue général de la librairie française* 1251. This began in 1867 (listing titles from

1840 on). Twenty-eight volumes have been issued (v. 29 in progress), covering periods of from three to twenty-five years. The arrangement is by author, with index under rather broad subjects. Special features are the inclusion of brief biographical notes, cross-references in later volumes to mentions of the same author in earlier volumes, and occasional notes indicating that the book has been crowned by the French Academy, as to the dates of earlier editions or sources from which books have been reprinted, etc. "Lorenz" has been based in part on the *Bibliographie de la France* and in part on the *Catalogue mensuel*, and is therefore incomplete, as is "Le Soudier" (cf. Mortet [1411]) and the other current lists which might be enumerated. The Bibliothèque Nationale's *Bulletin mensuel des récentes publications françaises* (1882–1920) was a useful supplement, as it gave fuller descriptions and included titles of books not appearing in the trade.

The best single retrospective source for French titles is, of course, the printed catalogue of the Bibliothèque Nationale [1386]. For the early part of the nineteenth century and the eighteenth century the lack of trade bibliography is filled by Quérard's *Littérature française contemporaine* and his more selective *France littéraire* [1257], which were the models for Lorenz (cf. Schneider [1417]). In addition to the various catalogues of French incunabula and the general catalogues of incunabula arranged by countries (like that of the British Museum), some 12,000 books of the fifteenth and sixteenth centuries are listed in the British Museum's *Short Title Catalogue of Books Printed in France and of French Books Printed in Other Countries from 1470 to 1600* [1249]; and the library of the University of Paris has published a *Catalogue de la réserve XVI^e siècle* (1501–50) [1256].

Literary history is represented by such famous works as Lanson [647], Petit de Julleville [650], etc. French national biobibliographical dictionaries, on the other hand, are of less importance, as the nominally universal dictionaries of Michaud [1374], Hoefer [1385], and Vapereau [1389] are particularly rich in French biography (cf. Schneider [1417]).

Among select bibliographies Fédern's *Répertoire* [1254] is the most extensive, including about one-fourth as many titles as

Lorenz since 1850, excluding, for the most part, books in law and the sciences. Carteret [1250] is an extensive and well-known bibliophile selection.

BELGIUM AND HOLLAND

Independent Belgian literature began with the foundation of the Belgian state in 1830. The most comprehensive compilation is the *Bibliographie nationale* [1297] (published 1886–1910, covering 1830–80). A monthly *Bibliographie de la Belgique* (1838–84) was replaced by the *Bibliographie de Belgique, journal officiel de la librairie* [1296] (1875–). Since 1904 this has enjoyed the co-operation of the International Institute of Bibliography, and since 1912 is an official organ of the Ministère des Sciences et Arts, Bibliothèque Royale. Its present arrangement and content are worth noting: Part 1, "Bulletin mensuel des publications belges ou relatives à la Belgique" (classified list, with author index); part 2, "Bulletin mensuel des articles de fonds parus dans les revues belges" (classified, with author index). There are also annual author and subject indexes. For Belgian biobibliography, cf. *Biographie nationale* [1295] (published by the Académie Royale des Sciences de Belgique). On the history and bibliography of Belgian bibliography, cf. *Bibliographie nationale*, v. 1, introd., Bergmans' *Répertoire* [1399], covering the years 1881–90, and Losseau's *Outillage bibliographique de la Belgique* [1409].

Netherlands bibliography is perhaps most important during the first centuries of printing, when it was the only country with a free, uncensored press. Campbell's *Annales de la typographie néerlandaise au 15 siècle* [1300], continued by Nijhoff's *Nederlandsche bibliographie van 1500 tot 1540*, and Van der Haeghen's *Bibliotheca belgica* [1298] (comprehensive for the fifteenth and sixteenth centuries, selective for later periods) include both Belgian and Dutch publications. For the seventeenth and eighteenth centuries (1600–1761) Van Abkoude's *Naamregister* [1294] offers a very extensive selection (re-edited and supplemented by Arrenberg to 1839).

These are continued by the Brinkman series; the *Alphabetische Naamlijst* [1299] (1858–1878, with "Wetenschappelijk

Register") covers the period 1833–75; *Brinkman's Catalogus* [1299] (1883–) embraces the whole period since 1850. These volumes, covering several years, are supplemented by the annual *Brinkman's Alphabetische Lijst* (1846–) and the monthly *Nederlandsche Bibliographie* [1302] (1856–). There is also a *Nieuwsblad van den Boekhandel* issued three times a week.

Among dictionaries of Dutch biography useful for bibliographical reference are van der Aa's *Biographisch Woordenboek* [1293], and Molhuysen and Blok's *Nieuw Nederlandsch Biografisch Woordenboek* [1301]. For more complete lists and descriptions of Dutch bibliographies, cf. Schneider [1417], Mudge [1040], and Evers's articles in *Nederlandsche Bibliographie* 1910–11.

ITALY

In Italy, book-trade periodicals did not reach a stage of continuity till after the middle of the nineteenth century. The *Bibliografia d'Italia* was undertaken by a group of booksellers in 1867, continued as *Bibliografia italiana* [1283] from 1870 by the Associazione Tipografico-Libraria Italiana. Modelled on the *Bibliographie de la France*, it was compiled on records of the Ministry of Public Instruction. In 1886 the task of compilation was turned over to the National Library at Florence, and later numbers of the *Bibliografia* were simply reprints of the Florence library's *Bollettino delle pubblicazione italiane ricevute per diritto di stampa* [1285]. This *Bollettino* is now published monthly, in classified arrangement, with annual index, and is not strictly limited to the "legal deposits" of books, although the recent volumes have been less complete and detailed than those of earlier years (cf. Fumagalli [1286]).

The publishers' organ, *Giornale della libreria* [1287] (1888–) includes trade announcements, corresponding to those of the German *Börsenblatt*, the *Bibliographie de la France*, our *Publishers' Weekly*, etc. Of the occasional publications corresponding to our *Publishers' Trade List*, the latest (1923) has the title *Catalogo dei cataloghi del libro italiano* [1284], and is accompanied by a volume of indexes (by class and by author).

The standard retrospective Italian bibliography is Pagliaini's *Catalogo generale della libreria italiana* [1290], covering the years

1847–1920, and including probably over 400,000 titles (the second part of the supplement for 1911–20 is not yet published). Earlier Italian literature may be located in literary histories like d'Ancona [637], in Haym's *Biblioteca italiana* [1288] of rare books, the many local bibliographies (cf. list in Fumagalli [1286]), and in more general bibliographies (cf. chap. 11).

Two other titles deserve mention to illustrate national bibliography as including books printed in the native language but outside the country: Sellers's *Italian Books Printed in England before 1640* [1292] and Manzoni's *Gli esuli nella Svizzera* [1289].

The best guide to Italian bibliographies is Fumagalli's *La bibliografia* [1286].

SPAIN, PORTUGAL, LATIN AMERICA

Spanish bibliography is of considerable importance, because of the fact that Spanish ranks second only to English as "Weltsprache" (Schneider). Foulché-Delbosc's *Manuel de l'hispanisant* [1330], v. 1, is an indispensable bibliography of Spanish bibliographies (retrospective and periodical general lists, "typobibliographies" arranged by period and locality, biobibliographies, "bibliographies monographiques," etc.). We may refer the student to this work for description of most of the bibliographical titles in this field. The most famous of the older works are Antonio's *Bibliotheca hispana vetus* and *Bibliotheca hispana nova* [1322] (covering the whole Christian era down to 1684 in literary-historical and biobibliographical fashion), Hidalgo's *Diccionario general de bibliografía española* [1333], Gallardo's selective *Ensayo de una biblioteca española de libros raros y curiosos* [1331], Haebler's *Bibliografía ibérica del siglo 15* [1331.1], and the catalogues of the Ticknor collection [1327] (in the Boston Public Library) and the great private collections (now dispersed) of Salvá [1338] and Heredia [1332].

Notable additions to Spanish bibliography since 1920 have been the British Museum's *Short-title Catalogue of Books Printed in Spain and of Spanish Books Printed Elsewhere in Europe before 1601* [1328] and Palau y Dulcet's *Manual del librero hispano-americano* [1335], which is an exhaustive compilation based on earlier bibliographies, including sales catalogues (cf. his pref.).

The series of periodical bibliographies begins with Hidalgo's *Boletín bibliográfico español y etranjero* (Madrid, 1840–49). Of those now current the chief is the *Boletín de la librería española*[1326] (cf. Schneider[1417]). The *Bibliografía española* (1901–22) was largely limited to books in trade at Madrid (cf. Schneider), but has been continued (1922–) by the more comprehensive *Bibliografía general española e hispano-americano*[1324]. These Madrid journals must be supplemented by those published elsewhere, e. g., the *Bibliografía*[1323] published at Barcelona (1919–)—one of the greatest errors in Spanish bibliography "is the description as Spanish of any one of the Iberian languages, when in reality there is no Spanish language; there are, in Spain, the Castilian, Catalonian, Galician, and Basque languages . . . and each of them has its own literature" (from Palau y Dulcet[1335]). A collection of publishers' catalogues[1329] appeared at Barcelona in 1925.

Much Portuguese and Spanish-American bibliography is included in titles like the above, but naturally Portugal and each country of Central and South America have their independent bibliographical compilations. For those of Portugal cf. Anselmo's *Bibliografia das bibliografias portuguesas*[1398], Silva[1338.1] (biobibliography of Portugal and Brazil), Pinto de Mattos[1335.1] (rare books), etc. and the current list of legal deposits in the National Library at Lisbon in *Anais das bibliotecas e arquivos*[1421.1]. For Latin America cf. Jones's *Spanish-American Bibliographies*[1340], although we should not omit reference to the many great contributions of José Toribio Medina to the history of printing and the bibliography of Spanish America in general[1342], of Argentina, Chile, Colombia, Cuba, Ecuador, Guatemala, Mexico, Paraguay, Peru, Uruguay and Venezuela (cf. Jones), and to the series of *Monografias bibliograficas* recently begun by the Mexican Ministry of Foreign Affairs[1343].

Among the more notable Latin-American periodical bibliographies are the *Revista de bibliografía chilena y extranjera*, published by the National Library at Santiago[1344], *Il libro y el pueblo*[1341], by the Mexican Department of Public Education, and the *Boletim bibliographico da Biblioteca nacional do Rio de Janeiro*[1345].

SCANDINAVIAN COUNTRIES

The Scandinavian countries are well equipped with both current trade bibliographies and retrospective compilations. Danish bibliographies more or less cover the whole group, especially for the earlier periods; and all Scandinavia is included in Ehrencron-Müller's biobibliographical *Forfatterlexikon* 1310 and in the select list edited by the American-Scandinavian Foundation 1306, etc.

In Denmark our series begins with Nyerup and Kraft's *Almindeligt Litteraturlexikon for Danmark, Norge og Island* 1319 (1820), continued in Erslew's *Almindeligt Forfatter-Lexicon . . . fra 1814 till 1840* 1311. Directly continuing this was a periodical *Almindeligt Dansk-Norsk Forlags-Catalog* 1305 (1841–50). These are largely replaced by Bruun's monumental *Bibliotheca danica . . . 1482–1830* 1307.

The *Dansk Bogfortegnelse* 1309 began publication in 1851 and is still current, fourteen to eighteen numbers a year, at irregular intervals, in dictionary-catalogue style. Cumulations of this are published at intervals of from five to ten years. There is also a weekly *Dansk Boghandlertidende.*

Icelandic bibliography is usually included with Danish (e. g., in a supplement of the *Dansk Bogfortegnelse*). American students, however, should know of the Fiske Icelandic collection in Cornell University Library. Cf. its *Catalogue* 1308 and the annual *Islandica* 1313, which includes important bibliographies.

Norway's independent national bibliography begins with 1814 (the year of its separation from Denmark), though the first issue of the *Norsk Bogfortegnelse* 1318 appeared in 1848 (covering 1814–47). There have been eight volumes of this, covering to 1910 (author lists, with indexes or supplementary index volumes). An annual with this same title is a list of books deposited in the Oslô University library, published first in its *Aarbog* and then reprinted. The Norwegian Publishers' Association publishes a *Kvartalskatalog*, which is supplemented and replaced annually by their *Aarskatalog* 1303.

A comprehensive bibliography for the period before 1814 is Pettersen's *Bibliotheca norvegica* 1320 (including foreign editions of Norwegian authors published after 1814); for 1814–80, cf. Halvorsen [1812].

Sweden lacks any such comprehensive bibliographical compilations as Bruun for Denmark and Pettersen for Norway. The sources for seventeenth and eighteenth century literature are particularly fragmentary and scattered—cf. Almquist's *Sveriges bibliografiska litteratur* [1396]. The now current *Årskatalog* [1304] began in 1861. The material for periods of from five to ten years is collected in the *Svensk bok-katalog* [1321], 1878– , covering the years 1866– . This has been supplemented backward (for 1830–65) by Linnström (one of its editors) in his *Svenskt bok-lexikon* [1315]. A short select *List of Swedish Books, 1875–1925*, by Josephson [1314], has just been published.

SWITZERLAND

A good deal of Swiss literature may be found in German and French lists. But attention should be called to the catalogue of the National Library at Berne [1347], supplemented by its *Bibliographisches Bulletin* (French title, *Bulletin bibliographique*), published monthly since 1901; and the monumental *Bibliographie nationale suisse* [1348], published by a bibliographical commission (1892–1916), five parts in forty-eight fascicules (for detailed contents cf. Mudge [1040], noting particularly [fasc. 1a] Graf's bibliography of Swiss bibliographies). A great bibliophile list is Lonchamp's *Bibliographie générale* (reprinted, with additions, from his *Manuel du bibliophile suisse* [1349], chap. 7).

AUSTRIA. EASTERN EUROPE

Austrian books in German have been generally included in German national bibliographies. No systematic or continuous organization of the bibliography of the former Austro-Hungarian Empire was ever effected. Since the dissolution of the empire the different new countries have been rapidly developing their national bibliographies.

The Czechish Bibliographical Institute has issued a number of bibliographical publications (under the editorship of L. J.

Zivny), including a weekly *Bibliografický katalog*[1350]; and there are noteworthy bibliographies of literature about the Czechs, e. g., Čapek's *Bohemian Bibliography*[1352] (of books in English).

A List of All Hungarian Books in Trade[1358] has been published by the bookselling firm Lantos, Budapest (1925), and the *Bibliographia Hungariæ*[1351] is taking up, class by class, the literature about Hungary in other languages. The great bio-bibliographical dictionary, *Magyar Irók*, by Szinnyei[1364] (1891–1914, 14 v.) has been supplemented by Gulyás (1925–). The *Magyar Könyvszemle*[1361] is a periodical review of Hungarian books, published by the National Museum at Budapest, and the German *Ungarische Jahrbücher*[1365] (1922–) includes reviews and lists of Hungarian books of the years 1906 ff.

For Poland, Estreicher's *Bibliografia Polska*[1353] (1870–1912, covering the years 1455–1900) has long been famous; *Przewodnik księgarski* (English title, *Librarian Guide*)[1360] is a general catalogue of books in trade (1925) and is to be continued by periodical supplements; *Ksiazka*[1357] is a monthly containing reviews and bibliography. Cf., further, Koczorowski's *Coup d'œil sur l'histoire de la bibliographie en Pologne*[1408] and Hahn's *Bibliografja bibliografji polskiej*[1354].

These Czechish, Hungarian, and Polish titles must serve to illustrate the bibliographical developments of Eastern Europe in general. The comparatively small number of American students working in these fields at the present time, and our own lack of familiarity with the various languages involved have prevented a more adequate survey. More familiar are comprehensive works like the *Osteuropäische Bibliographie*[1362], published by the Osteuropa-Institut at Breslau (1921–), Kerner's *Foundations of Slavic Bibliography*[1355] and *Slavic Europe*[1356] (the latter chiefly concerned with books in Western European languages), Schramm's list of Russian bibliographies in his article, *Vom russischen Buch*[1566] (although the translation of Russian titles into German makes it a difficult guide), etc. (cf. also Schneider[1417] and *Index bibliographicus*[1438], which is particularly extensive in its lists of periodicals for these countries). That the interest in Eastern European affairs is rapidly growing may be evidenced by the *Slavonic Review*[1363.1] (1922–), which includes articles, reviews, and bibliographies of interest to both specialist and general reader.

THE ORIENT

Oriental countries in general were mentioned under Subject bibliography—e. g., of chief importance, Gabrieli [560] and the *Orientalische Bibliographie* [593]. There are, however, several other publications, concerned with the native literature in the various countries. In India there have been official lists published in various states since 1867. For China, Japan, etc., most of the bibliographies commonly referred to are of books about these countries, like the works of Cordier, etc., and we know little of the real national bibliographies compiled by natives of those countries.

The same is true of bibliographies of Africa and Oceanica—they are mostly compiled by foreigners and in the languages of the countries which are interested as sovereign or trustee. Even the British colonies have been slow in organizing bibliographical publications.

Schneider [1417], Mudge [1040], and Peddie [1178], upon whom we have greatly relied in this chapter, should be studied for further information, and students interested in Eastern Europe or the Orient will find that even these works need a great deal of completing and bringing up-to-date in this present decade.

LOCAL BIBLIOGRAPHIES

Most subject bibliographies, we have noted (chap. 3), may be presumed to be incomplete in periodical articles, foreign publications, and even works published in their own country which fail to be reviewed in learned journals (whether because they have not been sent out for review, or because they are by obscure authors or publishers, or, again, because they are really of little or only ephemeral importance). We have urged the student to supplement the bibliographies in his own field, not only with those in kindred and more general fields, but with special bibliographies (chap. 9) of periodical articles, of the publications of governments and learned societies, etc. However, we have been obliged to note similar limitations in these; the *Indexes* to periodicals and society publications cover only a selected list and are often only national in scope; and the bibliographies and indexes of public documents for many countries hardly exist.

We have argued that national bibliographies should supplement these other sources by both their more complete retrospective lists and their more up-to-date current lists. But they also seem to be incomplete; whether compiled by the trade, by the State (national library, copyright office, department of education, etc.), or by bibliographers, most of them exclude periodical articles (Belgium is a notable exception) and miss some or all the obscure publications which appear neither in the trade nor in the government lists of deposits or copyrights. It is almost impossible to compile a complete personal bibliography, unless the services of a clipping bureau have been engaged from the person's birth.

The bibliography of a single place (State, city, town) or, better still, a bibliography of local imprints does not have to reckon with such a great variety of sources from which its literature may come; and the student of local history, local monuments or schools of art, local geography, geology, botany, etc., will find that local bibliographies and biographical and biobibliographical works supplement his other sources very considerably, if they do not indeed serve as the very basis of his work. A selected list for various countries is included in Stein's *Manuel de bibliographie générale* [1418]; and current lists are included in the *Bibliographe moderne* [1423] and the *Zentralblatt für Bibliothekswesen* [1455].

Publications in the United States are neither so old nor so numerous as those in many European countries, but the country is large, centres of printing are widely scattered, and we have noted the incompleteness of our bibliography in the greater part of the nineteenth century. The list of local bibliographies included in Ford's *Check List* (1889) [1192] does not run much over two hundred titles, and there is opportunity for a new and much larger compilation. (Cf. chap. 4, Bibliographies of history.)

European countries are smaller, but their books are so much more numerous, and their local presses have been so active since the fifteenth century, that local bibliographies are even more important. Humphreys's *Handbook to County Bibliography . . . Relating to the Counties and Towns of Great Britain and Ireland* [1369] is a book of 500 pages and must include nearly 10,000 titles.

The publications of the many French local societies (historical, scientific, etc.) are the hope and despair of students in many different fields of study (cf. chap. 9); there are even periodicals of local bibliography (e. g., the *Bibliographie alsacienne* [1367], published by the Faculté des Lettres de l'Université de Strasbourg; the *Annuaire bibliographique du Dauphiné* [1366], published at Grenoble by the Association des Archivistes-Paléographes du Dauphiné, etc.). For partial lists of French local bibliographies cf. Stein [1418] (where they are classed under "Sciences géographiques"), Langlois [104], and the lists and notices published from time to time in the *Revue de synthèse historique* [170], the *Bibliographe moderne* [1423], etc.

The extent and the distinctive character of German local literature and its bibliography may be inferred from the comparatively recent date of the federation of the German State (1871). There is, however, no comprehensive bibliography of the numerous important local bibliographies, biobibliographies, literary histories, etc.; and we can only refer the student to the brief selection in section VII, 2, of Arnold [690] and the scattered references in Dahlmann-Waitz [124].

Italian local bibliography is even more indispensable, since not only is its political unity of late origin (1861), like that of Germany, but also, unlike Germany, its unity in commercial and intellectual life. Accordingly, its national bibliographies must be the more supplemented by local bibliographies (cf. the 121 "Bibliografie regionali e locali" in Fumagalli [1286]).

Students of Spain, Portugal, and Spanish America are also largely dependent on local bibliographies. There are occasional special compilations like Brito Aranha's *Bibliographie des ouvrages portugais, pour servir à l'étude des villes, des villages, etc.* [1368], but more frequently they are to be sought in the manuals or bibliographies of national bibliographies (Foulché-Delbosc [1330] for Spain, Jones [1340] for Spanish America, etc.).

CHAPTER XI

UNIVERSAL BIBLIOGRAPHY. BIBLIOGRAPHY OF BIBLIOGRAPHY. JOURNALS AND SERIES

When we cannot even tell how many books there are in the world, it is obvious that there can be no such thing as a universal bibliography. But the term is a convenient one to designate the extensive "partial" and quasi-universal bibliographies which have not been included in our previous categories. We might define universal bibliographies as those in which the compiler lists every book he can lay his hands on. In this sense they are our oldest type. Select lists and national lists came in with the increase in the number of printed books and the growth of the trade; and, with the specialization in scholarship and in book-collecting, came the subject and special bibliographies.

There were catalogues of libraries, of course, from the very beginnings of libraries themselves. The most famous ancient catalogue was that of the library collected at Alexandria by the Ptolemies—consisting, according to tradition, of 600,000 volumes ("rolls"). The catalogue was done by Callimachus—in verse! This and ancient private-library catalogues exist only in fragments (cf. Kenyon [1630]).

Other ancient types of bibliographical works were the literary histories (the works of the grammarians in the Alexandrian period and later), biographies, and the encyclopædic works which, like their modern counterparts, are often biobibliographical, and, finally, pure bibliographies. The most famous are: Suidas's *Lexicon*, nominally universal but chiefly philological in point of view; Hesychius of Miletus's (sixth century) biobibliographical *Onomatologos*, Photius's *Bibliotheke* or *Myriobiblon* (ninth century)—80 volumes of discussions of books, written up for the benefit of his brother Tarasius, who was absent on an embassy and so had to miss the meetings of

Photius's reading-club. There are also titles of works from the first and second centuries of our era: on the uses of books (Artemon), on book-collecting (Philo of Byblos), on best books (Damophilus), etc. (cf. Schneider [1417] and Gardthausen [13]).

In Western Europe there was no such general development. In the Roman period there were encyclopædic works like Pliny's *Naturalis historia* (which was said to include information from 2,000 different volumes), biographical works like St. Jerome's *Viri illustres*, and library catalogues, though probably on no such scale as those of the earlier Eastern libraries. There were also the short trade posters noticed in chap. 10.

For the mediæval period there were encyclopædic works, such as St. Isidore's *Etymologiæ*, Vincent of Beauvais's *Specula*, etc. There were many library catalogues [1632.3] and one example of a union catalogue, in which some friars drew up a list of libraries held by their order in England and catalogued the writings of some 85 authors represented in them.

The first years of printing witnessed similar works, some of them concerned with the biography and literary history of special subjects—particularly religion, law, and medicine. Konrad Gesner [1380] gives an excellent idea of the bibliographical works available in the late Middle Ages and the fifteenth and sixteenth centuries, in his description of the sources of his own work: "From printers' catalogues of which I have hunted out and brought together not a few from diverse places, from library lists, then from libraries themselves here and there, both public and private, in Germany and in Italy . . . from letters of friends, from information of learned men, and finally from catalogues of writers which I shall name a little later. But the mention of ancient authors whose works are partly or entirely lost, I have excerpted from Suidas's Greek dictionary, Athenæus's Deipnosophists, Greek Epigrammata . . . and from certain others."

The list which he refers to as "to follow" is divided into three parts: (1) "Italian libraries . . . of which I have or have seen catalogues": Vatican, Medicean, S. Salvatore at Bologna, Bessarion, SS. John and Paul and others at Venice, Diego Hurtado a Mendoza.—(2) "Books from which I have drawn occasionally": Raphael of Volaterra's *Anthropology;* Bernardinus Rutilius on the lives of jurisconsults; Io. Fichardus on the lives of jurisconsults who flourished later than 1190; Petrus Crinitus on Latin poets; Lilius Gregorius Gyraldus's history of poets . . . lately published at Basle; Symphorianus Campegius on medical writers . . . and others.—(3) "Catalogues of writers, which we have inserted entire": Jerome on ecclesiastical writers and Gennadius on the same; Io. Fichardus, two indexes of writers on pontifical and civil law [published 1535]; Io. Trithemius Catalogue of ecclesiastical writers [3d ed., 1494].

Gesner was a second Pliny—primarily a natural scientist, but also, like Pliny, an encyclopædist, convinced that no book is so poor but that it contains something of value. He has been given the title "Father of bibliography" (cf. Bay [1371]). The title of his work reads rather quaintly: *Bibliotheca universalis; siue, Catalogus omnium scriptorum locupletissimus, in tribus linguis, Latina, Graeca, & Hebraica: extantium & non extantium, veterum & recentiorum in hunc usque diem, doctorum & indoctorum, publicatorum & in bibliothecis latentium. Opus nouum, & non bibliothecis tantum publicis priuatisue instituendis necessarium, sed studiosis omnibus cuiuscumque artis aut scientiae ad studia melius formanda utilissimum; authore Conrad Gesnero. Tigvri, apvd Froschouerum,* 1545. And the modern student will smile at some of his bibliographical "style" (e. g., entering authors under their Christian names, mediæval fashion) and at some of his aims—e. g., "in order that the lust of writing rashly may be restrained hereafter, as otherwise it will progress to infinity." But his book was famous immediately, was supplemented, indexed, and epitomized many times, and is still rated by bibliographers as one of the greatest accomplishments of any one man in the sixteenth century (Bay).

The *Bibliotheca universalis* was, of course, not really universal; its title explicitly limits it to books in Latin, Greek, and Hebrew, i. e., excluding all vernacular literature. And if Gesner's bibliography was "partial" and incomplete at a time when there were probably not more than 40,000 or 50,000 books in print, we may well despair of universality now.

UNION CATALOGUES

Nevertheless, the attempt has been made and is being made at the present time. In 1698 a prospectus was issued for the publication of an *Orbis litterarius universus exhibens materias et scriptores in omni scientiarum et artium genere*, etc., by Rafaello Savonarola; and in 1701 a frontispiece of a similar work, appropriately named *Mare magnum*, by Francesco Marucelli. The 40 MS. volumes of Savonarola seem to have been lost; but Marucelli, with supplements, is extant in 111 MS. volumes (cf. Biagi [1435] and Langlois [104], v. 1, p. 12). The Bibliothèque de l'Arsenal, Paris, has a similar work of the same period in 300 MS. volumes (Langlois, *loc. cit.*).

The catalogues of the Frankfurt book fairs were of a more or less international character (cf. chap. 10) and were the basis of such compilations as Draud [1377], Georgi [1379], etc., which are still occasionally useful for the identification of titles not listed elsewhere (cf. Schneider), though Langlois is perhaps correct in grouping these with such select lists as Ebert, Brunet, and Graesse (cf. chap. 9).

A number of pleas for a universal bibliography or international catalogue have been made by bibliographers in various countries (cf. Milkau [1383]), but the only recent serious attempt is that of the Institut International de Bibliographie (founded at Brussels, 1895). Among its several objects (e. g., the spread of the Decimal Classification), the first was the compilation of a "Répertoire bibliographique universel"; and this enterprise is still struggling forward against the odds of totally inadequate financing and of adverse opinion in many influential quarters (e. g., Dziatzko [1451], Milkau, and Langlois). It has been condemned on three grounds: (1) its impossibility; (2) more truthfully as well as more properly, on the ground that it is not worth the cost; (3) on the ground that it is not worth doing anyway. Langlois's argument is that one must be looking either for exact information on a particular point or for elementary notes. If it is only elementary works, look in bibliographies of best books. If you desire full information, look in special [i. e., subject] bibliographies made by specialists with care and competence.

It is rash to assert the impossibility of anything in these days of gigantic corporate and co-operative enterprises; and the student who has investigated the numerous and various types of bibliography will readily see that Gesner's methods are not beyond possibility to-day. While several suggestions of clipping and pasting of all sorts of bibliographies (e. g., Hottinger, 1876) or of official national lists (e. g., Sir Henry Cole, 1875, and Frels, 1921 [1378]) have been made, most of the projects have been directed toward an international union catalogue of libraries (Schrettinger in Germany, Danjou in France, Garnett in England, and many others—on all this cf. Milkau [1383]). This is the plan of the Brussels Institute, and the fact that the "Répertoire" has been brought to a total of some 13 million cards (author file about 5 million), even at a very modest financial expense, may fairly be said to have demonstrated the feasibility of the scheme (cf. Richardson [1387]).

That it will not be worth the cost, either in its present or its completed state, is probably true in the same degree as of any other intellectual enterprise or investigation. Unfortunately its desirability has not yet been demonstrated and cannot be demonstrated until it is firmly established, adequately staffed, thoroughly advertised, and, above all, actually used extensively, not merely as a centre of information of the number and titles of all the books in the world, but for the very practical information of where certain books may be found and used.

Certainly the various national and local union catalogues need no apology, in view of the success with which they are being developed at the present time. The infinite and indiscriminate growth of individual libraries can only be checked by a division of labor and specialization as regards books in only occasional demand (cf. Gerould [1625] and Richardson [1014]), and this in turn is only possible if we know what other libraries than our own contain and where we may borrow or go and see books not available at home. The Prussian union catalogue now covers fifteen great German libraries; the Library of Congress not only has its own catalogue, including about a million titles, but also a union catalogue of more than three million cards, nearly half of which represent books not in the Library of Congress. It is to be hoped that other American libraries will supply more "copy" for this union catalogue, and that the Library of Congress will find it possible to print and file copy, even if submitted in other than strict Library of Congress cataloguing form. Other similar enterprises have developed on an extensive scale, at Frankfurt (cf. Berghoeffer [1372]), Oslô, the Royal Library at Stockholm, etc. (cf. Wild and Escher [1390]). Many libraries located in the same city or vicinity have catalogues of each other's holdings, and many have a more extensive union catalogue of printed cards from the Prussian "Gesamtkatalog," the Library of Congress, etc. (e. g., that of the John Crerar Library, Chicago, includes cards from these sources and from the Hague Royal Library, and the universities of California, Chicago, Illinois, and Harvard).

CATALOGUES OF LARGE LIBRARIES

In addition to the union catalogue of printed cards and its own card catalogue, the large American research library will have in constant use the various printed union catalogues of special kinds of material (like periodicals, incunabula, etc. (cf. chaps. 9 and 13), and the printed catalogues of individual libraries. The largest libraries, such as the British Museum [1375] and the Bibliothèque Nationale [1386], while they do not approach completeness, yet are universal in scope, containing immense numbers of books not limited as to subject, as to place of publication, or date, or even as to merit. A library catalogue is a select list of books in so far as they have been selected and purchased, but every library treasures large gifts of less than first importance against the future needs of research students. That these were printed in book form, instead of on cards or in cumulative printing, is unfortunate, as the publication and the cataloguing of books goes on after the printing of a certain catalogue is complete. The latest method of the British Museum of printing periodical supplements, to be cut up and pasted either on cards or in a loose-leaf book, adds to the expense of the user—we recently calculated that it would cost several thousand dollars to cut, paste, and file the whole accumulation of these supplements. The Bibliothèque Nationale has likewise undertaken a catalogue; it has progressed halfway through the alphabet, and other libraries are so impatient to have it completed that it was recently proposed to photostat the rest of it for use, pending its revision and printing. The London Library *Catalogue* [1382] is a smaller and less detailed catalogue but its very brevity and compactness have made it up-to-date and convenient to use.

Many other useful printed catalogues or current accessions lists are published—e. g., Peabody Institute of Baltimore, University of Edinburgh, University of Leyden, the Royal Library at Copenhagen, the Public Library at Dresden, the Biblioteca Nacional, Santiago, Chile (cf. Milkau [1383], and the "Répertoire des catalogues d'imprimés des principales bibliothèques du monde" in Stein's *Manuel* [1418]). But the most useful and most used library catalogue in America is that of the Library of Congress, which is duplicated (i. e., author-entries) in depository libraries; it not only serves for verification of old titles but follows very closely the publication of new books (especially U. S. copyright entries), and is useful for purposes of interlibrary loan, photostat service, etc., and for the purchase of cards for the bibliographer's own file (there are now over 4,000 subscribers for L. C. printed cards).

BOOKSELLERS' CATALOGUES

Reference has already been made to second-hand trade catalogues concerned with rare books and other special or subject categories. There are also more general ones, issued by large and small dealers in all book-trade centres. Their scope is even more limited than library catalogues—by the number of books actually possessed in the collection, and, further, by the fact that only books of a certain minimum market value are worth the expense of description in a printed catalogue. Sometimes the description as "hitherto unknown" merely means unknown to the dealer (cf. Stein [1388]), and sometimes old friends masquerade, in the dealers' catalogues, under new or mutilated names (cf. Cutter's humorous article [1376]). But we not infrequently add to our own files clippings from these catalogues, and the combined extent of auction catalogues, as listed and indexed in Livingston [1070], *Book-prices Current* [1049], and other similar compilations (cf. app., chap. 9), is very considerable. The chief supplement they furnish to other bibliographical works is, of course, in their indications of auction prices of out-of-print books (but cf. Karslake [1069]).

LITERARY HISTORIES. BIOBIBLIOGRAPHIES. ENCYCLOPÆDIAS

Often the surest, if not the only information as to what or when a certain author has written may be got from literary histories, dictionaries of biography and biobibliography, and encyclopædias. These are, of course, never complete, even for their own time, and new editions and new works replace the lesser geniuses of earlier ages with greater (or lesser) geniuses of the present. So it is that no encyclopædia really "grows old"; and we have referred, e. g., to Zedler [1391] and Ersch and Gruber [1370] many times. Nicéron [1384], Joecher [1381], Vapereau [1389], Michaud [1374], and Hoefer [1385] are examples of international biobibliographies still very useful to the cataloguer and bibliographer. Still more useful are the dictionaries of national biography (cf. chap. 10).

GENERAL REVIEW JOURNALS

The student of bibliography, like the student in any special field, can only keep up-to-date by reading periodicals; and, in addition to the periodicals concerned exclusively with his special field, his list should include general review journals, where notices of new books often appear much sooner than anywhere else. They may receive, in regular routine, all the books issued by certain publishers, whereas the scientific journals are included only in special mailing-lists made up for special books. They are inclined to give more space to popular books and are generally national rather than universal in scope (even though they may call themselves international, make a feature of news about foreign books, etc.). Among the more cosmopolitan and more learned are the *Deutsche Literaturzeitung* [1392], the old *Göttingische Gelehrte Anzeigen* [1393], the French *Polybiblion* [1394], the London *Times Literary Supplement* [1395], etc. In

America the *Saturday Review of Literature* claims the closest resemblance to the London *Times Supplement*, but the research student in any other field than contemporary English and American literature will find little difference between it and the book columns and book supplements of the New York *Times*, New York *Herald-Tribune*, Boston *Transcript*, etc. (cf. also the *Yale Review* and similar journals).

With these we should mention examples of periodicals nominally devoted to certain fields but practically including all subjects in their relation to the special field—like the *Revue de synthèse historique* [170], the object of which is a synthesis and popularization of many things from the historical point of view, and like *Isis* [787], which takes an equally comprehensive view of the history of science.

BIBLIOGRAPHIES OF BIBLIOGRAPHIES

The so-called *manuals* or *bibliographies* of bibliographies are of the utmost importance since the number of books, and consequently the number of bibliographies, has increased. In 1897 the National Library at Paris had about 75,000 titles classed as bibliography, of which perhaps 60,000 were catalogues (both library and booksellers' catalogues), but 15,000 more special bibliographies—and this would not include, of course, periodical articles on bibliography, nor all the important special and subject bibliographies included in books which would be classed for the subject-matter of the main text rather than in the bibliography section of the library. For another example of the number of bibliographies being printed, the 1926 *Bibliographie des Bibliotheks- und Buchwesens* of the *Zentralblatt für Bibliothekswesen* [1455] runs to over 200 pages (titles of books and articles).

The first bibliographies of bibliographies were lists of library catalogues—for example, Philippe Labbé's *Bibliotheca bibliothecarum* (1st ed., Paris, 1653). For practical purposes, however, there is only a limited number with which the student need be familiar. The earliest of these is probably Peignot's *Répertoire bibliographique* (1810) and its enlargement in his *Répertoire bibliographique universel* [1415] (1812), which, although never complete or thoroughly reliable, and now far out-of-date, was a remarkable work because of its well-planned arrangement and careful investigations. Namur [1412] (1838) is less often referred to, though we have found it useful, and its 10,000 titles make it still a work not to be neglected by a bibliographer aiming at exhaustiveness. In 1866 Petzholdt, in his *Bibliotheca bibliographica* [1416], published a bibliography of bibliographies which can be definitely said not to have been superseded. Petzholdt aimed at completeness, but confesses in his dedication that his realization fell far short of his aim. Nevertheless, the work has been generally recognized as a success. In compilation, arrangement, fulness of information, accuracy, and reliability, it is still the best authority on bibliographies published before its date.

Vallée [1419] adopted an alphabetical arrangement with a subject index, which means that it is less convenient for the student in any special field, since he will have to get at bibliographies of that field through the index. Vallée's work is important for its inclusion of a great many titles not found elsewhere—especially those drawn from periodicals (most bibliographies of bibliographies have been largely limited to books). Otherwise (in matters of fulness, accuracy, etc.) it did not gain the recognition which is given to Petzholdt and to the latest attempt at a comprehensive bibliography of bibliographies—that of Stein (1897).

Stein [1418] attempts a synthesis of all the bibliographies published up to the end of 1896. It is, however, as he says, a selection, and dispenses absolutely with mention of superseded bibliographies. The writers on bibliography who have criticised as unfeasible and undesirable the compilation of universal bibliography, have criticised Stein's attempt as too ambitious, and it must be admitted that the work does show the effects of covering a tremendous field, and probably somewhat in haste. His notes are often altogether too brief, many omissions have been noted, such as a list of other bibliographies of bibliographies (he mentions Petzholdt and Vallée only in the preface). His list of universal bibliographies has only five titles (including bibliographies of best books). His list of the numerous special bibliographies (of the kind noted in chap. 9) is entirely inadequate. His list of encyclopædias fails to mention the great French "Larousse," as well as any Italian and Spanish encyclopædias. Errors in transcription of titles are unfortunately numerous. Cross-references and author index (prime essentials in a classified list) are wanting. The number of volumes of periodicals is not given. Nevertheless we have found Stein's work indispensable. The appendices deserve special mention: a "Géographie bibliographique" (list of places where books were printed before the nineteenth century); a very valuable list of indexes published by individual periodicals; and a list of publications of the principal libraries in the world.

The sad thing about such works as Stein is that, great as they are and full as they necessarily are of omissions and errors, the compiler nevertheless lets his work stand. It is a pity that Stein could not continue his compilation, not merely in the *Bibliographe moderne* 1423, but in supplements or new editions of the *Manuel*, say every five years.

In describing these titles as universal bibliographies of bibliographies, we perhaps run the risk of confusing our terminology. Under Subject bibliography we distinguished several types: Universal or comprehensive (including so far as possible everything on the subject); National (including (*a*) publications of a given country on the given subject, and (*b*) publications on the subject as it relates to a given country); Special (e. g., listing the rare books, early books, or best books on the subject); and Topical (i. e., of smaller divisions of a general large subject). Under National bibliography, again, we had examples of universal, special (rare, selected, etc.), and local. And so under Bibliographies of bibliographies you may have universal bibliographies of bibliographies (i. e., lists of all bibliographies of whatever nation, subject, etc.), bibliographies of special (e. g., period) bibliographies (like Bohatta 1517 for fifteenth-century books and Childs 1401 for the sixteenth century), bibliographies of subject bibliographies (either of all subject bibliographies or of those in a single field), national bibliographies of bibliographies (including respectively all the bibliographical publications of a given country), and bibliographies of national bibliographies (i. e., lists of national bibliographies of all countries—like Peddie's *National Bibliographies* 1178—or of a given country—like Ford 1192). Peignot, Petzholdt, Vallée, and Stein may therefore be described as universal bibliographies of bibliographies.

After these, we should mention certain library catalogues of bibliographies or of reference books, including bibliographies: e. g., the Z section of the printed catalogue recently issued by the Newberry Library 1413, the Bibliographical Society (British) *Handlist of Books in the Library* 1400, etc. Even more important, if one has access to them, are the unpublished library card catalogues—notably those of the Library of Congress, Chicago University, Columbia University, the John Crerar Library, etc. (cf. also A. L. A. *Special Indexes in American Libraries* 1397).

The second-hand book-trade not infrequently produces useful lists of bibliographical works—e. g., within the last couple of months we have seen valuable catalogues from Grafton, Maggs, Stevens, and Edwards (in London), Harrassowitz (Leipsic), Breslauer (Berlin), Nijhoff (Hague), etc.

The very approximate character of our classification of bibliographies is evident from the fact that the most extensive and important bibliography of bibliographies in recent years does not fit into it. This, Schneider's *Handbuch* 1417 (cf. also Merrill 1410) is not only selective (with liberal inclusion, like Stein), but generally excludes subject bibliographies. For the purpose of his book Schneider defines bibliography as "Lehre von den Literaturverzeichnissen." The book is divided into two parts, "Theoretisch-geschichtlicher Teil" and "Verzeichnender Teil." The former is incomplete as regards history (for this cf. Gardthausen 13, whose chief merit is here), but is our first and an excellent comprehensive theoretical treatise on the subject. The "Verzeichnender Teil" includes most of the material which we have described as national and special bibliographies; though we should like to see the list extended in future editions by the inclusion in the itemized list (and with fuller description) of the titles merely mentioned in the text; by some detailed attention to countries of Asia, Africa, and

Australasia; and the inclusion of at least some of the manuals of subject bibliography.

One of the best general bibliographical works in existence is Langlois's *Manuel de bibliographie historique* [104]. Langlois is concerned with the bibliography of history, and with that only so far as to indicate the guides through which access may be had to the literature on special countries, special periods, or special topics, etc. It is thus properly a bibliography of bibliographies of history. He finds it necessary, however, that manuals of subject bibliography be preceded by "Elements of general bibliography" ("these general repertoires are the common source upon which the majority of the authors of special repertoires have rested and still rest.") The first part of his work, therefore, contains chapters on: (1) universal bibliographies (in which he includes bibliographies of best books, library catalogues, special and periodical bibliographies); (2) national bibliographies; (3) bibliographies of bibliographies. Even the "Instruments de bibliographie historique" (Livre II) include "Répertoires particuliers à des branches speciales et aux sciences auxiliaires de l'histoire" (History of religion, Military history, Diplomatic history, History of languages and literature, of art, of science, of philosophy, of public and private law, of social science, of education; and the auxiliary sciences, Epigraphy, Palæography, Diplomatics, Numismatics, Genealogy, Heraldry, etc.). The *New Guide* [99] has similar sections.

There are other similar bibliographies, nominally concerned with special fields, but necessarily, though incidentally, also with cognate fields and general bibliography. Cross [672] includes sections on universal bibliography, bibliography of bibliography, general catalogues and book lists, bibliographies and indexes of periodicals, learned societies, dissertations, etc., in addition to specific topics in English literature and auxiliary subjects. (Cf. also Keogh [1407], Mazzoni [24], Maunier [305], etc.)

The John Crerar *List* [1404] and the A. L. A. list of *Special Indexes* [1397] may be mentioned as examples of bibliography of subject bibliographies (i. e., all subjects in general).

Bibliographies of national bibliographies (i. e., all countries) are Peddie [1178], the selected list of the N. Y. State Library

School [1177], etc. Courtney [1402], Ottino and Fumagalli [1414], Almquist [1396], etc., limit themselves chiefly to bibliographies published in or concerned with their respective countries.

Courtney's *Register of National Bibliography* is not a bibliography of bibliographies of Great Britain, but a bibliography of British bibliographical works. As Stein errs on the side of omissions, Courtney perhaps errs on the side of inclusion. Its aim is to register, by subject, all bibliographies published in England. It includes extensive periodical references and other analytic references—even articles which contain incidental bibliographical information. These minor items no doubt added a great deal of value to the book at the time of its publication, but a bibliography of only a few pages at the end of a book is useful only so long as it is the latest or the only bibliography on the subject. Such a title listed in a bibliography of bibliographies soon becomes obsolete if it has not already been superseded by an independent bibliographical work at the time. The later usefulness of the book is thus handicapped by a mass of obsolete and unimportant references.

The most useful select bibliography of bibliographies for American students is Mudge's *New Guide to Reference Books* [1040], since most properly constructed reference books include systematic bibliographies. Separately published bibliographies are listed either under their subject or in the general section of bibliography. The advanced student will subscribe to the general favorable verdict as to selection and annotation, but wish for more titles and more notes—he will miss, for example, references on Slavic, Oriental, and other subjects which are in less frequent demand in American libraries.

BIBLIOGRAPHICAL JOURNALS

All these bibliographies of bibliographies are retrospective, and we should add here, just as in the chapters on subject bibliography, a list of current lists and reviews of bibliographies. Few scholars and bibliographers will find it possible to read an adequate list of journals in more than one field; consequently great value attaches to the journals which attempt to collect, from other journals and the trade lists of new books, bibliographical titles in all fields.

The most comprehensive of these is the *Zentralblatt für Bibliothekswesen* [1455], each number of which is about equally divided between articles—on all sorts of bibliographical and library topics—and a section of news and lists ("Literaturberichte und Anzeigen," "Umschau und neue Nachrichten," "Neue Bücher und Aufsätze zum Bibliotheks- und Buchwesen"). An annual supplement ("Beiheft") cumulates the lists in a *Bibliographie des Bibliotheks- und Buchwesen,* classed under: "Allgemeine Schriften"; "Bibliothekswesen im allgemeinen"; "Einzelne Bibliotheken"; "Schriftwesen und Handschriftenkunde"; "Buchgewerbe"; "Buchhandel"; "Zeitungen und Zeitschriftenwesen"; "Allgemeine und Nationalbibliographie"; "Fachbibliographie"; "Lokale Bibliographie"; "Personale Bibliographie"; "Bibliophilie"; "Ex-Libris."

Another similar periodical of the first importance is the *Bibliographe moderne* [1423], founded by Stein in the year following the publication of his *Manuel.* It contains articles, lists, and summaries on archives, libraries, bibliography, history of printing and paper; abstracts from other bibliographical journals; and reviews. The "Chronique bibliographique" is particularly useful for mention of new bibliographies on various subjects.

The new *Archiv für Bibliographie Buch- und Bibliothekswesen* [1422] gives excellent promise, especially of articles on bibliographical topics, occasional resumés of progress and bibliographical literature, etc.

The *Bibliothèque de l'École des chartes* [158] is primarily a periodical concerned with the study of mediæval history, but includes the auxiliary sciences, and, among these, bibliography and libraries. Its bibliographies and reviews are excellent.

Other library and bibliographical journals in various countries include bibliographical articles, reviews, and sometimes bibliographical lists (cf. app.). The oldest and most famous was the *Serapeum* (1840–70). The English *Library Association Record* [1441] is important for reviews, as well as for articles and news. The various publications of the Bibliographical Society (*Transactions* [1426]—now published in the *Library* [1440]—*Illus-*

trated Monographs 1424, and the unnumbered series which we have entered as *Publications* 1425) and the Oxford Bibliographical Society *Proceedings* 1446 specialize, though by no means exclusively, in the history of the printed book and exhaustive lists (by subject and otherwise) of earlier printed books, etc. The *Revue des bibliothèques* 1449 includes occasional articles of the first importance on enumerative bibliography, palæography, history of printing, etc., as well as on library science and history. Of similar variety are the *Rivista delle biblioteche* 1450, *Revista de archivos bibliotecas y museos* 1448, *Het boek* 1429, *Bogens Verden* 1430, etc.

The Bibliographical Society of America not only contributes to historical bibliography, rare books, Americana, etc., but its *Papers* 1427 (as those of its predecessor, the Bibliographical Society of Chicago), have included many important articles and lists of subject bibliography and other enumerative types—e. g., Josephson's list of *Bibliographies of Bibliographies* 1405, Childs's list of bibliographies of *Sixteenth Century Books* 1401, the forthcoming volumes on American and Canadian national bibliography, etc. *Library Journal* 1442 and *Libraries* 1439 (formerly *Public Libraries*) have represented generally the practical, administrative, technical, and popular interests of the public circulating library, but have by no means excluded occasional theoretical, academic, and scientific bibliographical articles. Book notices and lists are frequent, but thorough reviews rare. The A. L. A. *Bulletin* 1420 is primarily a news organ of the Association, but its annual volumes of *Proceedings* include valuable contributions in all fields of library and bibliographical interests. Public-library representation in its membership, however, so far outnumbers that of research libraries and bibliographers, that, in the past, limitations of space have been allowed to exclude from publication many of the scholarly and original papers read at the various sectional meetings. The American Library Institute 1421 (with a limited membership) attempted to provide a forum for the theoretical and scholarly interests of librarians, and published a number of important papers on topics varying from collations of ancient manuscripts to the color-band method of filing pamphlets, but of late years the private subsidies of their publication have ceased and their papers have appeared in *Libraries* or *Library Journal* (sometimes entire and sometimes in abstract or by title only).

The *Bulletin of Bibliography* 1432 (primarily the trade journal of the F. W. Faxon Company) has gradually appropriated, or developed, certain special lists on topics not covered by other journals, which it continues from year to year—e. g., v. 12 (1923–26) includes: the quarterly lists, "Principal contents of the library press" (American and English), "Births and deaths . . . in the periodical world," "Dramatic index"; an annual "Index to library reference lists"; and a number of special articles and lists, e. g.: *Glimpses of the Lives and Works of Certain French Bibliographers*, by Harriet Dorothea MacPherson; *One-Act Plays*, by Lester Raines; *Contemporary Russian Drama*, by Helen H. Aten; *Anthony Trollope*, by Mary Leslie Irwin; *Jane Austen*, by Jean Lowrie Edmonds, etc.

Another important library periodical is *Special Libraries* 1452. Every number contains bibliographies of one sort or another, chiefly concerned with topics of interest to the business and industrial concerns in connection with which most of the "special libraries" have been established.

The obvious need of a more general and perhaps more academic American journal has brought into prospect, under the auspices of the American Library Association, a new journal, which may be expected to give space to thorough book-reviews and original scholarly articles, some attention to the contents of the foreign library press in languages other than English, etc.

Another important category of bibliographical periodicals is library bulletins, which contain, in addition to their reports, etc., frequent bibliographical articles, bibliographies of bibliographies, and bibliographies of various subjects. Even their selected lists and lists of new accessions constitute bibliographies of best books. In the United States the *Bulletin* of the New York Public Library 1444 is most noteworthy for its very detailed and complete subject bibliographies (though only within the contents of the Library). Each number of the *Bulletin* includes a list of those which have been issued separately also and are still in print—a glance through the list in the January (1927) number shows a variety of important bibliographical works—Assyria and Babylonia, British genealogy and local history, Color photography, Letter of Columbus (facsimile edition), Druids, Ancient Egypt, Geology of New Jersey, Chemistry and manufacture of inks, Journalism, Lycanthropy, Macpherson's *Ossian*, Naval architecture, Numismatics, Pageants, Persia, Provençal literature and language, Russian and other Slavonic and Baltic periodicals, Scotland, Spalding baseball collection, Washington eulogies, etc. The Boston Public Library, the libraries of Harvard and Yale Universities, and a host of other American libraries, large and small, issue bulletins including all sorts of articles and lists of varying degrees of scholarly or popular usefulness. In England the John Rylands Library *Bulletin* [1436] and the Bodleian *Quarterly Record* [1445] may serve as outstanding examples.

Library Work [1443] undertook to abstract the great number of articles and discussions scattered through various periodicals. It published in 1911 a cumulation of its quarterly lists, and was then suspended, and the *Library Journal* has continued it, covering the years 1914 to 1920 and 1926 ff. The *American Library Annual* [1619.1] published cumulated lists in 1914, 1916, and 1918.

Sixty-six periodicals have been indexed by Cannons [1433] in a minute classified arrangement which serves to indicate the contents of the articles very closely. Other library lists are traceable through the *Bulletin of Bibliography* (as noted above). An annual abstract-résumé of publications in English has been announced by the (British) Library Association [1454].

The League of Nations Committee on Intellectual Co-operation has sponsored, under the editorship of Marcel Godet, an *Index bibliographicus; répertoire international des sources de bibliographie courante* [1438], which is designed to guide the student to periodical publications necessary to keep him "au courant des nouvelles publications qui peuvent l'interesser" ("Quels sont, pour chaque pays, pour chaque science, les périodiques à consulter, les institutions propres à renseigner?"). About a thousand names of periodicals (including a few information bureaus) are listed according to the Decimal classification (which appears somewhat Procrustean), by country of origin and alphabetically (by catchword). It is an extremely valuable list, but, in the hope of a new edition, some criticisms are not amiss. In the first place, periodicals should always be described from their first date of publication (with the number of volumes issued, history of changes in name or auspices, etc.). In the second place, the success of any co-operative bibliography depends on three things (among others)—getting collaborators, getting the right collaborators, and systematic and critical editing. The preface shows that diligent efforts were made to get collaborators in every country, and the list of collaborating institutions is imposing. Nevertheless, the titles omitted under some countries and under some subjects show the need of co-operation on the part of professional organizations other than libraries and on the part of individual scholars and bibliographers. In the American list, for example, we miss not only individual titles like the *Library Journal,* but also any current American sources for American work in classical and Oriental studies, anthropology, astronomy, mathematics, physics, geography, etc.

Similar gaps could be noted under other countries, e. g., Spain and Italy.* These omissions generally indicate, of course, a corresponding lack of systematic periodical bibliography in particular subjects in special countries, but there are still "périodiques à consulter," in want of better, say for the American contributions to classical studies. The editor did make some attempt to complete, to correct, and to make uniform the material received from the various collaborators, but seems to have discarded few if any of the titles submitted, with the result that the section of general bibliography, for example, runs to over 200 titles, without sufficient annotation to distinguish periodicals of apparently identical scope. All in all, however, a very difficult task has been not ineffectively accomplished. With the increasing growth of organized international intellectual co-operation, the task of perfecting this work in a second edition should be comparatively easy.

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* "Omissions we expected to find, but not omissions of the principal national sources of reference. Indeed in many broad highways of literature, e. g., history, theology, education, law, geology, etc., we have failed to find a single British publication recorded" (*Nature,* May 2, 1925).

There is no guide other than the periodical lists of the *Zentralblatt*, etc., to the occasional special and international congresses of librarians and bibliographers, to memorial volumes ("Festschriften"), etc., and to the publications of book clubs, which are generally concerned with the publication of bibliophile editions rather than with bibliography in general (on American book clubs cf. Richardson [1199]).

A BIBLIOGRAPHY OF BIBLIOGRAPHIES OF BIBLIOGRAPHIES

By now the student will have applied the statement of Ecclesiastes, "Of making many books there is no end," to lists of books and to lists of lists of books as well. In any case, he will be relieved to learn that this paragraph introduces the final division of our complicated classification of enumerative bibliographies.

Josephson's *Bibliographies of Bibliographies* [1405] includes: (1) General handbooks (like Petzholdt); (2) Selected lists (like Merrill, Mudge, etc.); (3) Periodical records of current bibliographies (like the *Zentralblatt*); (3) [sic] Catalogues of public and private libraries and booksellers' catalogues (like the Bibliographical Society's *Handlist*); (4) Bibliographies of national bibliographies (e. g., Peddie); (5) Bibliographies of special subjects, that is, bibliographies of bibliographies on single subjects (like Langlois, de Margerie, etc.). What the compiler says of the first edition (1901) should be taken to apply also to the second ("While completeness is not claimed . . . the compiler hopes that it may serve as a fairly reliable guide to bibliographical literature"), and it is to be regretted that Josephson's excellent beginning has not found a continuator.

CHAPTER XII

HISTORY OF WRITING

While the material of the preceding lectures is essential to students in every field of study, the degree of interest in the historical division of our subject will differ in different lines of work. The monuments of the history of writing are also the very source material for students of the humanities and the book sciences, but science, as we understand it to-day, is of modern origin. The ancient Egyptians and Babylonians recorded scientific observations and data, but did not attempt scientific explanation; the Greeks explained, but did little in the way of experimentation, and the beginning of modern, exact and experimental science is commonly dated from Roger Bacon in the thirteenth century (cf. Sedgwick and Tyler [780]). Furthermore, even the data of science, unlike the data of history, art, literature, etc., are constantly being sifted, resifted, and cumulated, so that the experimental scientist's bibliographical data are often contemporary with his own life. Nevertheless, there are problems in antiquity for the scientist, as well as for other scholars, as we have noted in our first chapter, and every cultured scholar is interested in the history of his subject. "While science is a comparatively recent achievement of the human race, its roots may be traced far back in practices and processes of prehistoric and primitive times" (Sedgwick and Tyler). Madan [1480] also recommends manuscript reading to the general reader, and to the bibliophile (who may or may not read), as good discipline for concentration, and speaks of the charm of a manuscript contemporary with its author or with the event which it records.

The history of writing is thus necessary to the understanding of the monuments of all branches of knowledge throughout antiquity and the Middle Ages—from our first dated monuments (fourth millennium B. C.), and before, down to the invention of printing, about 1450, and afterward. The period of the manuscript was 6,000 years; the last 475 years include all our printed books. We shall therefore attempt to outline the history of writing, not merely as a science in itself, but also as an auxiliary to all the sciences; and the monuments here selected as examples of writing should also enlist interest as monuments of general history, history of science, literature, etc. However, the history of writing so treated in full would be, in a sense, a history of civilization (cf. DeBurgh [1460], Taylor [1504], and other cultural histories) and far beyond the scope of our present undertaking. We must be suggestive rather than comprehensive, and the very obvious inadequacy of our notes and illustrations should accomplish our purpose of leading the student to further study of classes of MSS. which lie within his special field of interest.

ORIGINS. PICTURE WRITING

The origin of writing lies in the prehistoric period, and has been the subject of much speculation by scholars in many branches of learning. The beginnings of books are traced back, along with the beginnings of libraries, by Richardson [1636] to a psychological origin—to what he calls the "inward" book—but, for our present purposes at least, that which is "graven on the tablets of the mind" may be considered as belonging rather in the domain of psychology. We shall, therefore, omit any discussion of memory, which Richardson says was the first record, and, in the time of primitive individual self-sufficiency, the only record found necessary. We may also leave to the psychologists and folk-lorists the many tales told by many races of the invention, and the mystical and magical properties, of the alphabet (cf. Dornseiff [1461]).

There have always been various mnemonic devices, such as trophies, souvenir fragments of objects intended to recall whole objects or circumstances, notched sticks ("clog almanacs"), knotted cords ("quipu"), colored stones or beads ("wampum"), tattooing, etc. These are, it is true, material methods of record and communication, but they have too indirect and uncertain a bearing on the evolution of present Occidental alphabets to merit more than a passing allusion here.

The real birth of writing, it is generally believed, was in realistic pictures, although some of our earliest monuments do not seem to accord with the theory. After (1) pictures, the evolutionary stages are then thought to be: (2) "Pictographs," i. e., conventionalized pictures abbreviated to emphasize only the significant or distinguishing detail of the object (e. g., our astronomical signs); (3) "Ideograph," involving transfer of pictograph from object to idea (modern examples are the hand or arrow pointing direction, the barber-pole picturing the blood on the arm of the barber-leech's patient, the Indian in front of the cigar-store, etc.); (4) "Phonogram," transfer of pictograph and ideograph to the sound of the word; (5) combination of phonograms in a "Rebus" (phonogram and rebus may be compared with our modern game of charades); (6) the simplification and specialization of the word-phonogram to syllables; and, finally (7), to alphabetical sounds—the first sound of the word-phonogram determining the syllabic or alphabetical value, on the principle of "acrophony" (i. e., the symbol comes to stand for the initial sound of the word rather than for the whole word). (Cf. more complete discussion, with diagram, in Gardiner[1468].)

Most accounts of the development of writing based on this theory begin with our own North American Indians for picture-writing, or perhaps with African tattooing, and then work backward in time two or three centuries to the Aztec pictographs, phonograms, and rebuses, then five thousand years back to Egyptian hieroglyphics, which are pictographs, ideographs, and phonograms (syllabic and alphabetic) all at once, and, to some extent, phonetic. (Here the phonograms serve as "determinatives" of the other symbols; e. g., as if you drew a picture of a man and wrote his name after it to show which man you meant, or as if—supposing the pictograph represented *Sun*, *Sky*, or *God*—you added a phonogram giving the sound.)

The development of the syllabic writing among the Egyptians and the Semitic peoples somehow or other culminated in the Phœnician set of 22 conventional symbols commonly referred to as the Phœnician alphabet, or, more properly, consonantal alphabet or syllabary (as the signs represented only consonants, or consonants plus vowels). The Greeks adopted this Phœnician consonantal alphabet, and by adaptations and additions (particularly in the vowel symbols) evolved as nearly pure alphabetic writing as we have got (e. g., we still have the symbol x representing the two sounds k and s). From the Greek came our Latin alphabet, as well as the Russian, Coptic, and others which look stranger to us than they ought.

PREHISTORIC WRITING

Although we are at present in no position to controvert this account, attention should be called to the fact that the methods employed are those of comparative anthropology rather than historical. In fact, a stranger to anthropological researches may perhaps be pardoned for querying the validity of much of the reconstruction of prehistoric civilization as a composite of modern primitive civilizations. Is the drawing of a bison on the wall of a palæolithic cave, for instance, proven to have a magical intent because such would seem to be the purpose of similar work by modern Bushmen? Or is it possible that art may have antedated magic and the picture have been simply a picture? (Wundt's *Völkerpsychologie* suggests that art itself may have originated in meaningless, geometrical, or linear marks; and realistic art may have developed out of the accidental resemblances of such marks to real objects.)

It is with such queries in mind that we have decided to present our series of illustrations in approximately chronological order, beginning with our oldest monuments. These are of the "Reindeer" (Magdalenian) period of the Old Stone Age (15000–10000 B. C.). They have been well discussed in Evans's *Scripta Minoa* [1466] and his *European Diffusion of Primitive Pictography* [1465]. While Evans believes in the pictographic origin of writing, he adds: "It must at the same time be observed that the earliest pictographs, as seen in the lowest layers of the rock palimpsests of the Pyrenæan caves, themselves present simple linear forms nearer to alphabetic types than those found in the more advanced stages of this 'painted art.'" On the other hand, Breuil has published what seems to be an example of picture-writing in this period, from Pasiega (cf. Weule [1511]).

In spite of our general plan of showing you only specimens of writing which are especially significant for their content, we can say nothing of the content of these first specimens.

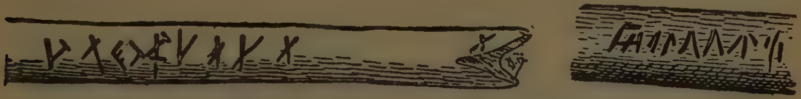

Fig. 1. INSCRIPTIONS OF THE OLD STONE AGE.

From La Madeleine, France.

In fact, we may be merely speculating when we call them specimens of writing, though it is difficult to imagine what else they can be.

The same doubt may be expressed regarding our next specimens, from the next period of "pre-history," the Azilian (standing between the Palæolithic and Neolithic, i. e., about 10000 B. C.). Piette [1490] classes some of these symbols as alphabetiform and interprets others as numbers, symbols, and pictographic signs. Various other explanations have been offered, and no one has yet pretended to read them. Evans [1465] thinks that they should be regarded as mnemonic symbols or individual marks: "Some, it may be, had acquired a magical value."

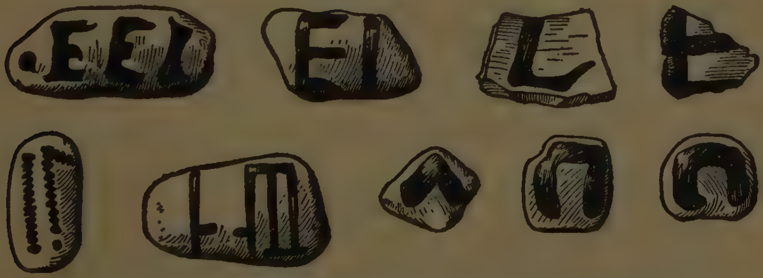

Fig. 2. PAINTED PEBBLES OF THE AZILIAN PERIOD.

From Mas d'Azil, France.

Several alphabetiform inscriptions of the Neolithic period are described by Severo [1499.2], and discussed with reference to other monuments and literature on the subject (cf. also Weule[1510] and Jensen[1470]), and Evans[1465] cites monuments from the Bronze Age which may indicate a more or less continuous tradition, but which are historically later than monuments of writing in Mesopotamia and Egypt.*

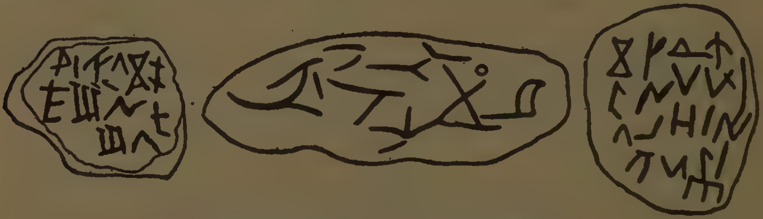

FIG. 3. NEOLITHIC INSCRIPTIONS.
From Alvao, Portugal.

Flinders Petrie, in his *Formation of the Alphabet*[1488], presents an impressive tabulation of prehistoric linear signs from Egypt, Spain, and Asia Minor, etc., resembling the letters in our alphabet. "This early system," he says, "was certainly in its decadence long before any hieroglyphs were used in Egypt. . . . It appears that a wide body of signs had been gradually brought into use in primitive times for various purposes." The phonetic values of the various signaries is, of course, not known; for all we know they may have had no phonetic value—in fact, a mark of ownership or a potter's trade-mark probably would not have phonetic value.

We are certainly far from being able to say positively that either these or the Stone Age inscriptions are ancestors of our phonetic alphabet.† Nevertheless, the possibility remains that some inventor may have been capable of the "great wrench of thought" involved in the adoption of arbitrary symbols to indicate the sounds of articulate speech—that the ultimate origin of our letters may have been the geometric arbitrary symbols of palæolithic Europe rather than the realistic picture-writing of the Orient.

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* Morlet tabulates, from his supposed Neolithic discoveries at Glozel, France, about a hundred alphabetiform symbols—cf. *Mercure de France*, July, 1926, p. 79 ff. But the objects discovered are, for the most part, spurious, according to the verdict of an international committee of anthropologists (cf. *Revue Anthropologique*, Oct.–Dec., 1927).

† I. e., they may be alphabetical in appearance ("alphabetiform") but, if phonograms at all, are probably not alphabetical in phonetic value. "Ce n'est pas de l'écriture, mais 'la page avant' celle-ci, la préparation du matériel qu'elle utilisera et sélectionnera" (Breuil, in *Anthropologie* 36 (1926), p. 557–558).

WRITING OF THE SUMERIANS AND BABYLONIANS

The earliest certain monuments of writing (from the countries in and about the Tigris and Euphrates valleys) seem to support the traditional theory of pictographic origin. Though they are generally thought to be our earliest specimens of writing, their dating is a problem involving the collaboration of palæontologists and archæologists. The beginnings of the civilization of Elam and Mesopotamia lie in a stratum containing Solutrean palæolithic flint work, and, supposing Asiatic periods to be several thousand years older than the corresponding periods in Western Europe, we might possibly lend some credence to the story handed down by Simplicius (a historian of otherwise doubtful trustworthiness) to the effect that a certain Callisthenes, who accompanied Alexander the Great to Babylon, brought back word to Aristotle that the Babylonian astronomical records ran back for 31,000 years (cf. Rogers [1493]).

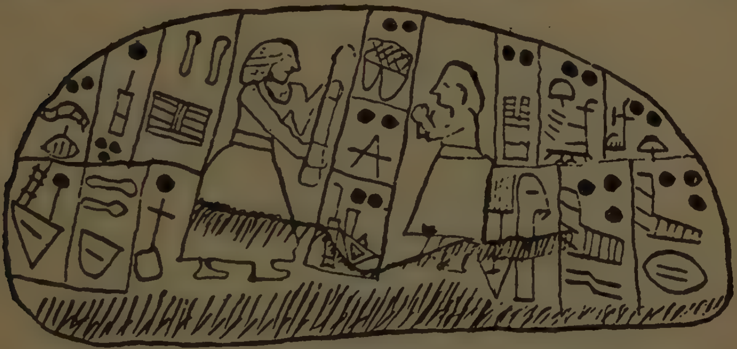


FIG. 4. PICTOGRAPHIC WRITING FROM MESOPOTAMIA, "BLAU" MONUMENTS.
British Museum.

Nevertheless Flinders Petrie, who may be taken as a representative of the school of archæologists who believe in "higher" dates, ventures to date Elamite civilization no farther back than 7000 B. C. If we take historic dates as our starting-point, we reach "lower" and still "lower" dates. The earliest historic date is the reign of Sargon, about 3000 B. C. (?) (cf. Rogers [1493]); and the names of earlier kings preserved without dates are placed between 3000 (?) and 4500 (?) B. C. The writing in the inscriptions of these kings appears less primitive than that of some other inscriptions, and so these other inscriptions in turn are dated at about 5000 or 5500 B. C. (cf. Barton [1456]).

Fig. 4, a portion of the "Blau monument" (now in the British Museum), is probably a good example of early Sumerian pictographic writing; there are actual pictures of human figures to represent the suppliant to the god, and you may recognize the pots, weapons, and birds he is offering, as well as the numerical symbols (dots).

If the Blau monuments and other similar tablets (e. g., S. Langdon's *Excavations at Kish*, Paris, 1924, v. 1, pl. 31) are ancient or modern forgeries, as some Orientalists think, we may take this inscription of Enshagkushanna, the first king of Babylon whose name we know (Hilprecht [1487.1], no. 90), as representative of the oldest Mesopotamian writing. This is no longer pictographic or merely ideographic, but geometric, linear in form, and phonetic in signification: e. g., the sign ⋆ (ideograph for sun, sky, god, lord) is used as an ideograph for *en* or *an*,

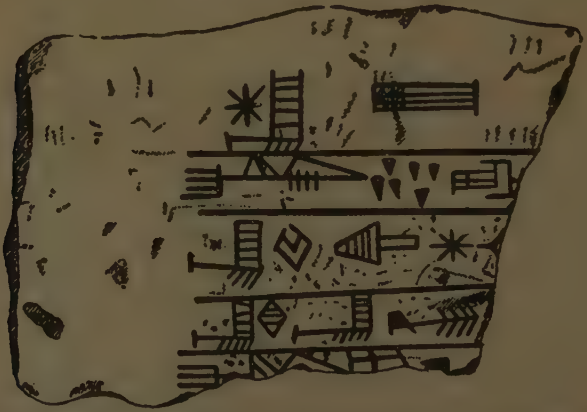


FIG. 5. LINEAR BABYLONIAN INSCRIPTION OF KING ENSHAGKUSHANNA.
University of Pennsylvania Expedition.

meaning *lord* or *king* in the first line, but in the third line is the *an* in *Enshagkushanna.*

Both these inscriptions have to do with religious matters, and still have a particular interest for us, since our own religion had its origin with Abraham in Ur of the Chaldees. Another great document of religious history, and an example of the Mesopotamian cuneiform writing, is shown in the following reproduction of a fragment of the Babylonian story of creation (cf. Rogers, *Cuneiform Parallels* [1492]).

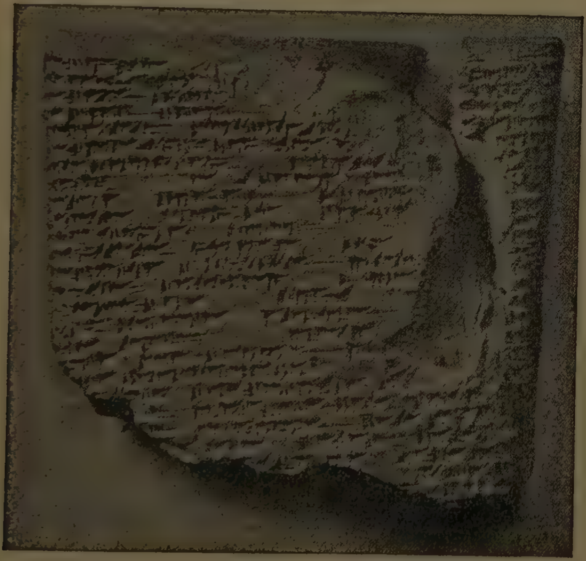


FIG. 6. CUNEIFORM WRITING.
Fifth Tablet of "*Creation*."
British Museum.

These cuneiform (wedge-shaped) strokes were made by pressing the end of a stick or reed into the soft clay of the tablet at an angle and continuing the stroke in a straight line with constantly diminishing pressure. The relation of the complicated symbols made up of these wedges to the earlier linear and pictographic symbols is obvious only after considerable study, although some idea of the process of development may be got by reference to such comparative tables as that given by

Unger[1507]. Whether or not the ultimate origin of these characters was in realistic picture-writing on material other than clay and no longer in existence, we have here the culmination of the adaptation of written characters to a writing-surface of clay.

Aside from religion, the only contributions made by the Babylonians to Western and modern civilization are in the fields of astronomy and of commerce and law. The great antiquity of "Chaldæan" astronomy and astrology is well established by universal tradition, though the 31,000 years' record, which Callisthenes is said to have seen, does not exist. The famous code of laws of King Hammurabi, which you may read in almost any general work on Babylonian civilization (e. g., Rogers, *Cuneiform Parallels*), gives an excellent picture of Babylonian civilization—personal property, real estate, trades, industries and labor, credit and deposit, marriage and family life, etc.

The famous Tel-el-Amarna cuneiform tablets (named after the place of their discovery in Egypt) include letters to the court of Egypt from many different peoples in Asia Minor, and are important sources for the political history of the world in the fifteenth century B. C. They are also evidence for two important facts in the history of writing: that cuneiform may be regarded as the international diplomatic script of the time, and, secondly, that, whatever lost evidence there may be that the Babylonians used other materials and styles of writing, we must suppose that the cuneiform inscription was the chief method.

Finally, we cannot omit reference to the Behistun inscription, which is famous as a record of the deeds of Darius the Great, but even more famous for its place in the history of decipherment of unknown languages and scripts. (For illustration, see Rogers[1493].) The story of the decipherment is one of the most romantic in the history of scholarship. Over two hundred years elapsed between the first reported discovery of inscriptions at Persepolis in unknown scripts and in unknown languages (by Pietro della Valle, 1621), and the practically complete reading of the Behistun inscription of Darius (by

Henry Rawlinson, 1846). Carsten Niebuhr reached the conclusion (1788) that the Persepolis inscriptions were in three different languages, the simplest of which employed 42 different symbols. In 1798 Tychsen recognized one of these as a mark of separation between words. In 1802 Münter, on historical grounds, identified the language as Persian and suggested that a certain word recurring in identical or slightly modified form be interpreted *king;* and Grotefend observed that there were sometimes as many as ten symbols in a word, that a ten-letter word was more likely than a ten-syllable word, and that therefore we have to do with an alphabetical script. He found identical names in similar positions in different inscriptions, e. g., *Y* King, son of *X* King, and *X* King, son of *Z* (without title of King). *X*, therefore, since his father was not King, was the founder of a dynasty and the names could only be Artaxerxes King, son of Darius King, and Darius King, son of Hystaspes. Comparison with later Persian (Zend) served as a basis for transcribing these names in modern alphabetical symbols and, subsequently, for the transcription of other words. Studies of other inscriptions, especially the long Behistun inscription, practically completed the solution of decipherment, not only of the Old Persian, but also of the other two languages (Babylonian and Elamite or Susian), which were reconstructed on the basis of comparison with other Semitic languages. Confirmation came later with the discovery in the 1880's of bilingual cuneiform-Greek inscriptions.

Progress is said to be conditioned on change of personnel, so to speak, and civilizations are thought to have risen or decayed according as they have been brought into contact with other civilizations or isolated. And the progress of writing seems to conform to this theory. Thus our earliest Mesopotamian inscriptions—pictographic, linear, and cuneiform—are attributed to the Sumerians, a non-Semitic people who spoke an agglutinative language. For them the unit of writing would have been the simple word, unchanged by any grammatical inflection. A conventionalized picture would suffice to represent this word in any context. But such extremely conventionalized symbols as the cuneiform, could hardly be adopted for the writing of another language in other than their phonetic value. In the Semitic languages the forms of words changed in grammatical inflection. The Babylonian Semites, therefore, used the Sumerian signs to indicate syllables (i. e., consonant plus vowel, or, in some cases, vowel alone). Since the stem vowels of Semitic words change in inflection, it is difficult to explain why the Babylonians did not further analyze their language into pure vowel and consonant sounds—unless it was because of a comparatively limited vocabulary and of the fact that all words began with consonants. In any event, the Indo-European languages and the later Semitic languages have found it necessary to express vowel sounds in writing.

EGYPTIAN WRITING

As in the case of cuneiform, neither Egyptian script nor Egyptian language was known to the early discoverers (in the seventeenth century). The first great landmark in the history of the decipherment was the discovery of the Rosetta Stone in 1799 (one of the great archæological discoveries which made Napoleon's expedition to Egypt of lasting importance in the history of civilization). This inscription was written, in 196 B. C., in Hieroglyphic, Demotic, and Greek, though part of the Hieroglyphic version had been lost.

Notable progress was made in the identification of personal names by the English naturalist, Thomas Young, who wrote an article on the subject in the *Encyclopædia Britannica* (1819). The greatest figure in this field, however, was Jean François Champollion, who became interested in the problem at the age of twelve years and expressly dedicated his life to the work of decipherment. He steeped himself in information about Egypt; particularly, he learned thoroughly the Coptic language (the descendant of an ancient Egyptian dialect). Fifteen symbols were established from the personal names which had been identified, certain inflectional endings were recognized, and many inscriptions read in Hieroglyphic, Hieratic, and Demotic. Champollion died at the age of forty-two, before he had worked out the three systems of writing in such a manner as to convince the learned world; but most of his results were confirmed by the work of Lepsius, Hincks, and Birch, and by the discovery, in 1866, of another complete inscription in Hieroglyphic, Demotic, and Greek (the Decree of Canopus).

The chronology of Egyptian writing and civilization is, like that of Mesopotamia, a field for controversy. Flinders Petrie [575] is again a champion of higher dates, basing his reckoning chiefly on the Greek historian Manetho, who wrote in the fourth century B. C., apparently with good historical sources at hand, but whose work has come down to us only indirectly. On this basis the first Egyptian dynasty of kings began with Menes or Narmer, about 5546–5484 B. C., and there were 184 pre-dynastic kings. Further, Magdalenian flint work found in Egypt leads Petrie to compare the earliest period of Egyptian civilization with European Magdalenian, as he compared Elamite with the Solutrean of Western Europe.

Most Egyptologists, however, favor lower dates for the earlier dynasties; e. g., Breasted's *History of Egypt* dates Menes, the first king of the first dynasty, at about 3400 B. C. (i. e., over two thousand years later than Petrie). It is possible that astronomical records were kept even before the first dynasty; and Breasted has attempted to establish the year 4241 B. C. as the latest possible date for the beginning of the Egyptian chronological system (365 days in the year, without leap-year or other correction of the remaining one-fourth of a day), and, consequently, as the "earliest fixed date in history."

It is difficult to hazard any statements as to the origin and character of pre-dynastic writing in Egypt. If, as many Orientalists believe, Mesopotamian civilization is earlier than that of Egypt, and there is evidence of early influence from Mesopotamia on Egypt at the very beginning of its history (e. g., the use of seal cylinders, the sculptural treatment of lion and other animal forms, etc.—cf. Langdon [1473]), one may speculate as to the influence of prehistoric Mesopotamian writing on prehistoric Egyptian writing—but, as yet, speculate only. As our first illustrations, we might refer again to Flinders Petrie's signary; but the two following perhaps offer a better chronological (though tentative) order. The first is identified by Petrie [575] with a pre-dynastic king Ka, whom he dates about

5650 B. C. (two thousand years later if you follow "lower" dates).

The second is the palette of Narmer (c. 5500 or c. 3400 B. C.?), which has been used by Gardiner [1468] as a very telling illustration of how Egyptian writing may have originated. You have here a set of pictures accompanied by hieroglyphic signs. The group at the right is interpreted: the god Horus (i. e., the falcon) brings (with a rope) to the Pharaoh foreigners (indicated by the head on the other end of the rope), from their land (indicated by the cylindrical object to which the head is attached), to the number of 6,000. All is picture except the

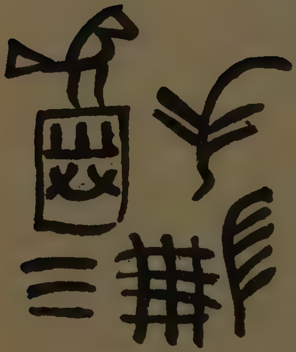


Fig. 7. EGYPTIAN PICTOGRAPHIC INSCRIPTION.

Names of King Ka.

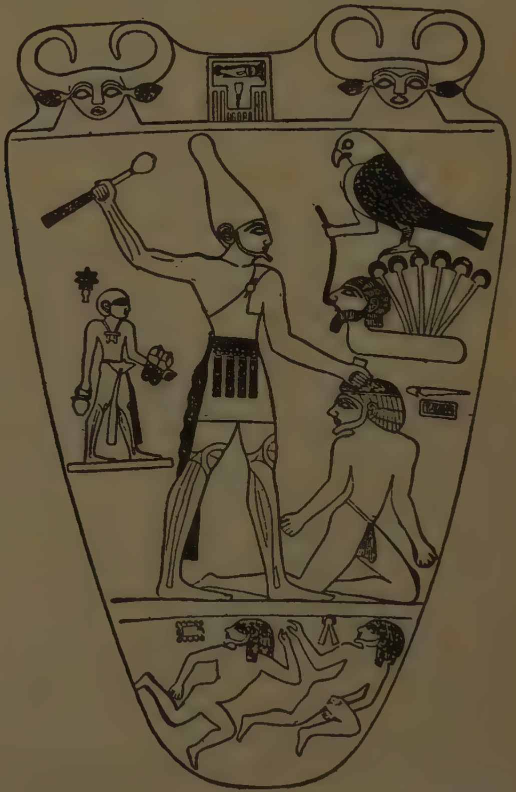


Fig. 8. EGYPTIAN PICTOGRAPHIC INSCRIPTION(?)

Narmer Palette.

From Hierakonpolis.

6,000, which is thought to be indicated by six reeds, since the comparison of the Egyptian words *kho* (*thousand*) and *h'* ("a water-plant or some such botanical object") "makes it obvious that this is a typical case of phonetic transference."

Whether or not Gardiner's interpretation is correct, it is generally agreed that hieroglyphic writing was of pictographic origin and preserved a pictographic character throughout its history, from the fourth dynasty (c. 4700 B. C. or c. 3000 B. C.) to the fourth century A. D.

Aside from monumental inscriptions, the chief use of hieroglyphics seems to have been in the sacred books, above all in the *Book of the Dead.*

We have seen in the Narmer tablet the possible transition from pictographic to ideographic and phonetic writing; and in these hieroglyphics we see the persistence of pictorial forms with various ideographic and phonetic values. Both were used together, e. g., the picture of an eye was a pictograph for *eye* and an ideograph for *see*, and the meaning "eye" could be made plain by prefixing the phonogram for *m'* (eye) as a "determinative"; or, vice versa, the picture of an eye of course served as determinative to the understanding of *m'* as *eye* and not some other, similar-sounding word. It is not so difficult to understand how new language-needs (the writing of new words, foreign names, etc.) led to the use of certain word signs or syllable signs to represent, by acrophony, a single vowel or consonantal sound, as it is to understand why a new alphabetic system did not entirely supersede the complication of ideographic, syllabic, and alphabetic all together. But we have to reckon with the extreme conservatism of priests, whose exclusive control of the art of writing descended to them from the god Thoth, scribe and inventor, and with the structure of the language itself. The change to alphabetic writing came only after centuries of familiarity with Greek and Roman alphabetic writing and with the needs of the Christianized Copts. Then a new alphabet, based on the Greek, was invented for the Coptic dialect.

The contents of the monuments shown above may serve to illustrate what are perhaps the chief interests in all civilizations —religion and politics. From the connection of the Egyptians

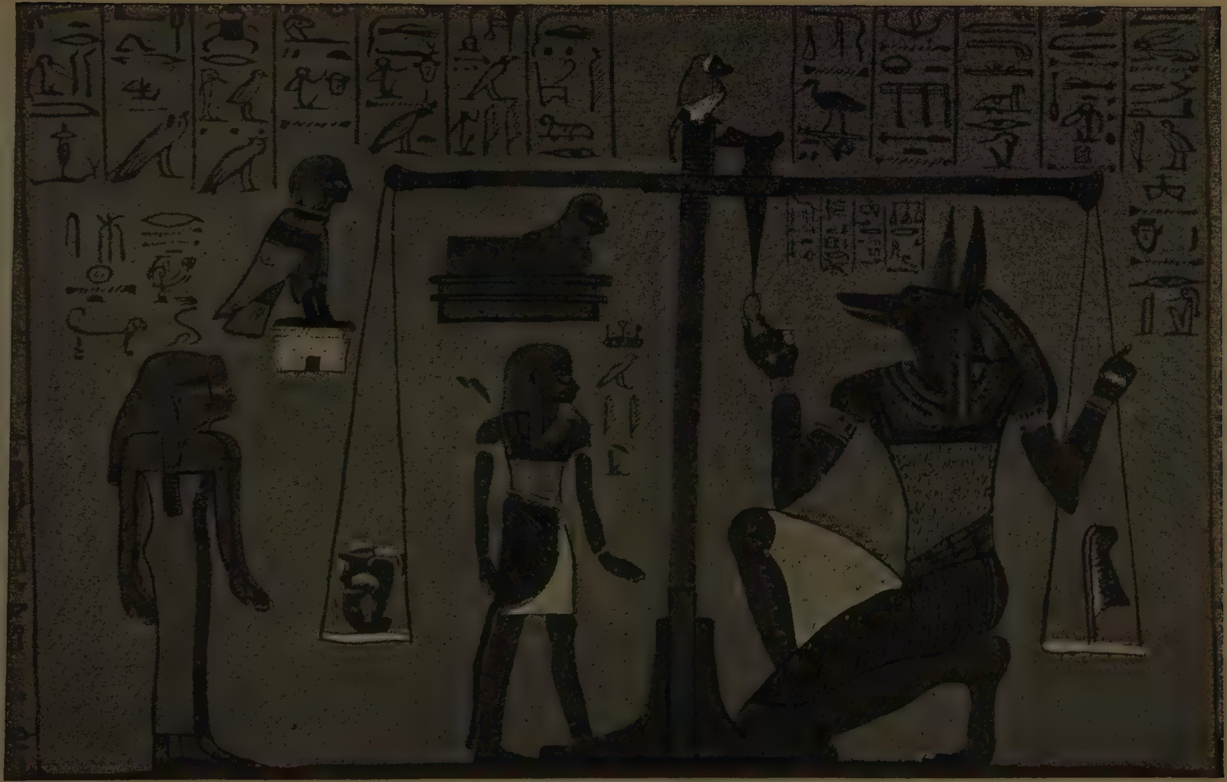


Fig. 9. EGYPTIAN HIEROGLYPHICS.

"Book of the Dead."—Papyrus Ani, British Museum.

with the Jews, on the one hand, and with the Greeks and Romans on the other, we may infer an influence upon the development of the Christian religion and the Roman law, but evidence is lacking to assert any great measure of it. It has also been suggested that the reform of the calendar made by Julius Cæsar was based on the work of Egyptian astronomers, since Sosigenes, the astronomer who assisted, seems to have been an Alexandrian Greek. Much of Egyptian science, like Egyptian religion, would appear to the modern student as more in the nature of the occult—magic. But before denying to this class of literature any lasting influence on civilization we should consider the great vogue of the "Hermetic literature," the "wisdom of the Egyptians" throughout the Middle Ages and even to the days of the modern Masonic order.

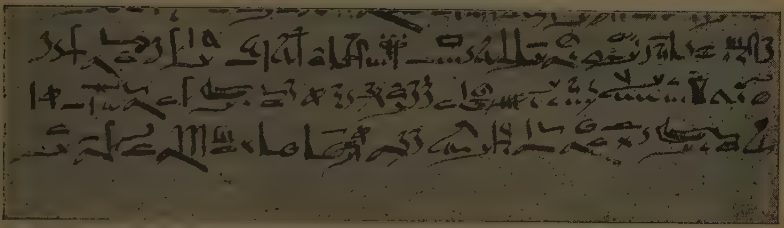


FIG. 10. EGYPTIAN HIERATIC WRITING.
Edwin Smith Surgical Papyrus.
New York Historical Society.

The surgical papyrus Edwin Smith (now in the New York Historical Society Library—cf. the Society's *Quarterly Bulletin*, April, 1922) dates from the seventeenth century B. C., and is described as "the oldest nucleus of really scientific medical knowledge in the world." There are other important Egyptian MSS., like the Rhind Mathematical Papyrus, which show that Egyptian science was practical as well as magical. Applied science would seem to be the forerunner rather than the offspring of pure science, and, to estimate highly the Egyptians' achievements in this direction, one need think only of the pyramids and of the complicated irrigation-engineering, geometry, and surveying necessitated by agricultural conditions along the Nile.

As the Greeks invented the name *hieroglyphic* (i. e., *sacred carving*), so they gave the name *hieratic* to the style of writing seen in our last illustration and in other documentary, literary, and scientific papyri, dating from the fifth dynasty down to the fourth century A. D. Hieratic is generally agreed to be a development from the hieroglyphic, although it is an interesting fact that we can argue from our monuments equal antiquity for the two styles. (The oldest dated papyrus, the Papyrus Prisse, is written in hieratic.)

The third style of Egyptian writing was the Demotic (writing *of the people*), of which you may see examples in reproductions of the Rosetta Stone and the Decree of Canopus. This developed from the hieratic, by abbreviation and combination of hieratic characters, and was in use from about the eighth century B. C. until the end of the fifth century A. D., chiefly for documents.

Egypt's greatest contribution to civilization was in the field of writing and book materials. The discovery that the long, thick stalks of the papyrus reed could be sliced, placed in criss-cross layers, and pressed into a convenient and durable writing-material, delivered the world from libraries of sticks and stones and bricks. The papyrus roll was the chief, almost the only writing-material in use for all the great works of literature in Egypt and the Greek and Roman world, from the fourth millennium B. C. until well on in mediæval times. In lieu of detailed description of its manufacture, writing, storage, and use, we shall have to be content with showing a picture of the various shapes it took and the instruments with which it was written (Fig. 11). (Cf. also Schubart [1615] and Wettley's illustrations [1509.2].)

Other writing-materials were also in use, of course, and this illustration includes wooden tablets, which were used for public notices (e. g., the "album" posted in the Roman Forum), for memoranda, and for school work; when coated with wax they presented much the same appearance as our school-slates and had much the same use, as erasures could be made by simply rubbing the wax surface smooth. Two or three of them tied together (in "diptychs" or "triptychs") suggest the "co-

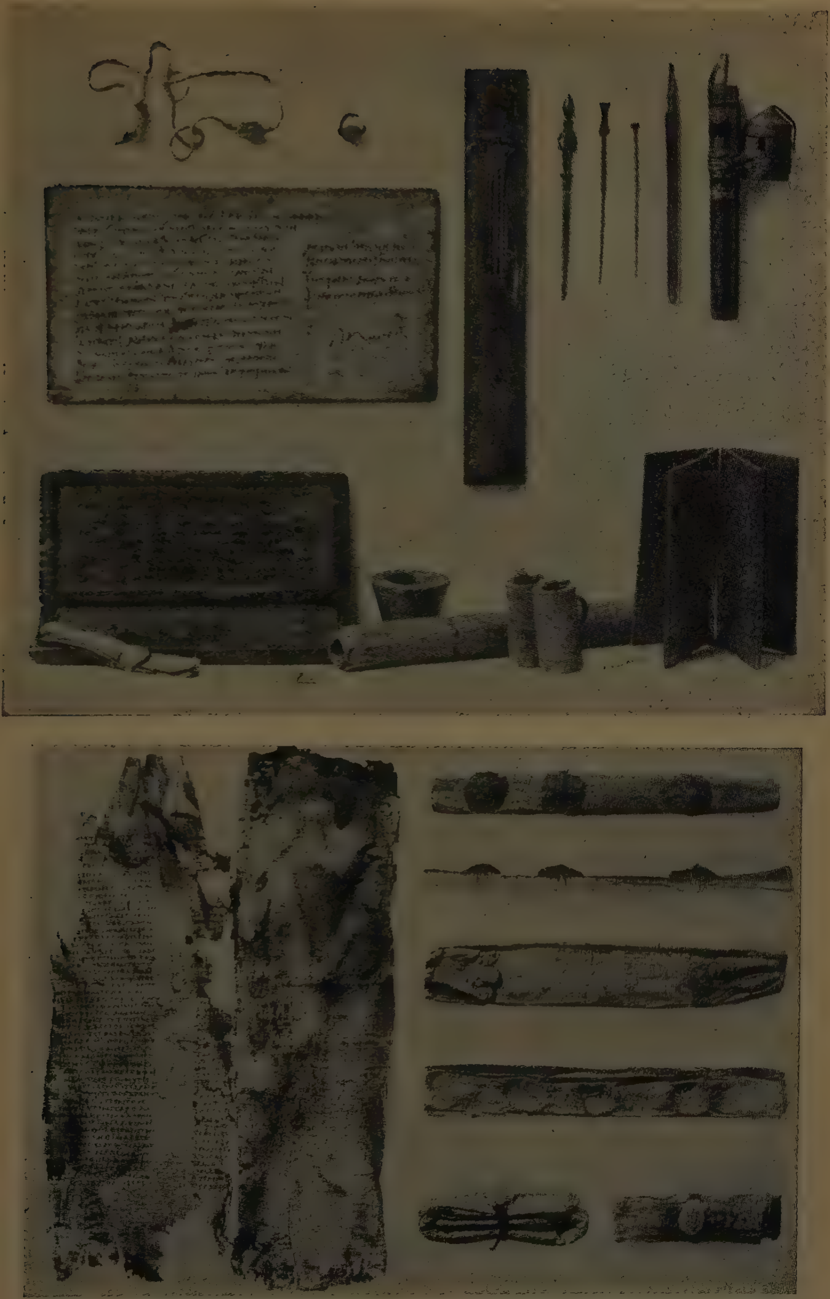


FIG. 11. ANCIENT WRITING-MATERIALS: PAPYRI, SEALS, WOODEN AND WAXED TABLETS, PENS, INK-POTS, ETC.

From "Amtliche Berichte" (August, 1910), of State Museum, Berlin.

dex" form of the vellum MSS. and of our modern printed book. Also, the skins of animals had been used for writing, from the very beginning, but some improvement in the preparation of the surface and perhaps the invention of the codex are thought to have taken place in the second century B. C., because of the story that King Ptolemy of Egypt became jealous of a rival book-collector, King Attalus of Pergamum, and placed an embargo on papyrus, so that King Attalus was forced to resort to the use of skins as writing-material. (Our oldest extant Greek parchment is of the early second century B. C.) From Pergamum, at any rate, comes the name *pergamene* or *parchment;* though we use *parchment* (sheepskin or goatskin) and *vellum* (calfskin) more or less indiscriminately.

EGYPTIAN THE ORIGIN OF PHŒNICIAN WRITING? SINAITIC INSCRIPTIONS

It has been thought that we owe Egyptian writing still greater reverence as the ancestor of our writing. Among the more important attempts to trace the origin of Phœnician (and therefore our own writing), there is a variety of conclusions: Ball, Delitzsch, Hommel, and others argued its descent from cuneiform or the earlier Mesopotamian linear; Prætorius assumed the existence of a primitive syllabary in Asia Minor (like the later Cypriote); Petrie, as we have seen, traces it to a Mediterranean "signary," Evans to Crete (see below), Lidzbarski to a "Proto-Semitic," De Rougé to Egyptian hieratic, Lenormant to Egyptian hieroglyphic, and there have been advocates of the theory of out-and-out invention by the Phœnicians (e. g., Enthoffer, in *U. S. Bureau of Education. Circulars*, 1875, no. 1). A summary of such different views may be found in an article by Gardiner [1467], who believes hieroglyphics to have been the indirect origin. His arguments are: (1) geographical—Phœnicia was nearer and more accessible to Egypt than to Mesopotamia; (2) historical—In Phœnicia during the late second millennium B. C., when the Phœnician or Proto-Semitic alphabet originated, Egypt was more powerful and influential than Mesopotamia; (3) palæographical and linguistic —Babylonian and other Asiatic writings were syllabic, whereas Egyptian has a full alphabet of consonants and the Phœnician is a consonantal alphabet.

The difficulty lies in tracing back to Egypt, or to pictorial representations of objects, the actual letter forms and letter names. A certain number of forms afford striking analogies, others may be either derivations or coincidences, and the rest may be accounted for as derivations. Gardiner advocates "a much greater importance for the traditional names of the letters"; seventeen names have "plain or plausible" meanings, and point to original pictographs. (The meaning of the other five names is not known.) He finds the missing link ("Proto-Semitic") in some inscriptions recently discovered on the Sinaitic peninsula. These are dated, on the evidence of pottery found with them, at about 1500 B. C.; 150 signs are legible, and may be classed in 32 different types. Seventeen of these types are plausibly identified with the 17 intelligible names of Phœnician letters, and there is an obvious resemblance between them and Egyptian writing.

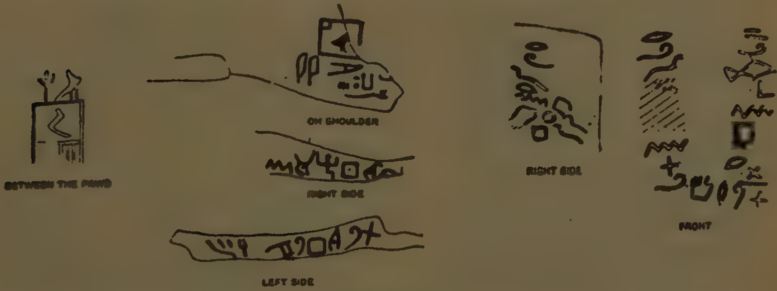


Fig. 12. "PROTO-SEMITIC" (?) INSCRIPTIONS FROM THE SINAITIC PENINSULA.

Gardiner's work has met with a variety of criticism, but his conclusion is cautious and tentative enough to represent the general conservative opinion of scholars better than the later attempts to explain these inscriptions in more detail: "Thus we have to face the fact that, at all events not later than 1500 B. C., there existed in Sinai, i. e., on Semitic soil, a form of writing almost certainly alphabetic in character and clearly modelled on the Egyptian hieroglyphs. Exception may perhaps be taken to the detailed comparisons of signs that have here been made, but if the new Sinaitic script is not the particular script from which the Phœnician and the South-Semitic alphabets are descended, I can see no alternative to regarding it as a tentative essay in that direction, which at all events constitutes a good analogy upon which the Egyptian hypothesis can be argued. The common parent of the Phœnician, the Greek, and the Sabæan may have been one out of several more or less plastic local varieties of alphabet, all developing on the acrophonic principle under the influence of the Egyptian hieroglyphs."

CRETAN WRITING

It is really astonishing to observe how plausibly the letter forms may be tabulated, not only according to Gardiner's theory, but also according to Petrie's and according to Evans's, whose *Scripta Minoa*[1466] should be noticed before we come to Phœnician writing itself.

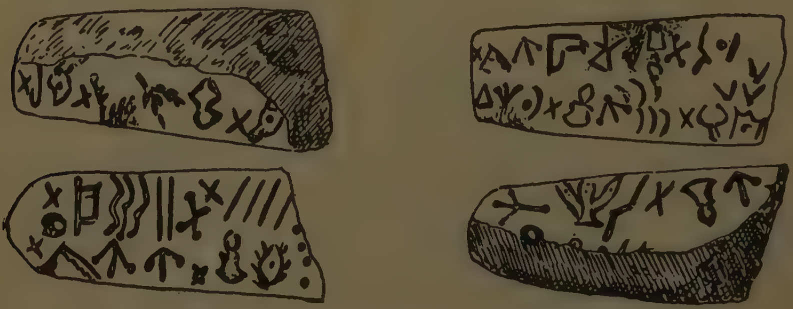


FIG. 13. CRETAN LINEAR WRITING.

Evans has to deal with two classes of pictographs (one of which is represented by the famous Phæstus disk) and a linear writing. In addition to his collection of pre-Cretan material which we have already noted, he finds evidences of the spread of Cretan linear writing to the mainland of Greece, the Ægean Islands, and Asia Minor. The whole period of Cretan writing is from about 2500 to the twelfth century B. C. His strongest argument for a Cretan origin of Phœnician writing (aside from the plausible comparative table of letter forms) is the apparently historical fact of the spread of Cretan civilization in its later phases (i. e., in the so-called Mycenean period) to the shores of Asia. The Philistines of Bible history have been plausibly identified as Cretans.

PHŒNICIAN WRITING

Phœnician inscriptions have been discovered of the thirteenth or possibly fifteenth century B. C., a date rather early to harmonize with the Cretan or the Sinaitic theory of origin.

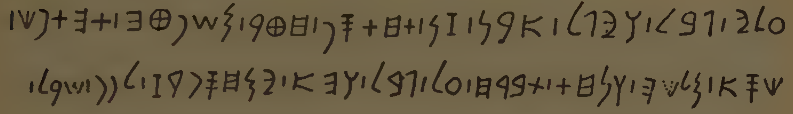


FIG. 14. PHŒNICIAN INSCRIPTION, AHIRAM SARCOPHAGUS

Dussaud, who published these inscriptions [1463], favors the conclusion that the Phœnicians made up their own alphabet, partly by borrowing from some or all of their neighbors (the Phœnicians traded everywhere) and partly by modification of the forms borrowed, or, possibly, by outright invention; at any rate, with entire independence as to the phonetic equivalents of the letters and as to the names of the letters. Petrie's "Mediterranean signary" and the still older inscriptions from the Iberian peninsula (referred to above) are also possible sources.

The most famous inscription in characters like the Phœnician is the Moabite stone, or inscription of Mesha, which until recently was considered the oldest. The content is King Mesha's account of the successful revolt against Jehoram, King of Israel (896–884 B. C.), and may be compared with the Biblical account in *Kings II*, chap. 3. But, all in all, our monuments of Phœnician writing are comparatively few and give us no idea of the tremendous activity, chiefly commercial, of these people.

The numerous descendants and modifications of Phœnician writing—or of related early Semitic alphabets—extend over the whole world of to-day. Arabic or other descendants of Aramaic scripts are in use throughout Asia, from Turkey to Mongolia and the Malay Peninsula, and in Africa from Morocco to the regions using the Haussa language. And, finally, all Occidental writing is clearly descended from the Phœnician. (For an interesting and detailed family tree, cf. Stübe [1502].)

GREEK WRITING

It is a fault of all general histories of writing that they devote an amount of space to pre-Hellenic writing which is out of all proportion to the importance of these writings to modern civilization. We have omitted all the primitive substitutes for writing (quipu, wampum, clog almanacs, gestures, pure picture, etc.), and all the writings which clearly lay outside the line of development which led to European writings (like the primitive writings of America, Africa, and the South Sea Islands; the ancient Chinese; the Hittite; and all the Oriental derivatives of Phœnician). Nevertheless, the lack of an up-to-date, unbiassed synthesis of the many unproven and yet plausible solutions has led us to give maximum space to it here.

The same disproportion is evident if we compare the discernible, if perhaps not the actual, influence of historic peoples on modern civilization. We can point to only a few definite contributions made by the Babylonians to systems of weighing and measuring, to law and commerce, and possibly to religion, and by the Egyptians to various religions of the Roman Empire (which are no more), to the occultism of the Middle Ages (which survives only as a curiosity), and to the practical side of the sciences (in what now seems a negligible amount). The classic Greeks knew far less than we of Cretan civilization, though De Burgh suggests that even after centuries of darkness "the relics of the old civilization reasserted their power, in fusion with the temper and genius of its new masters, to give birth to the culture of historic Greece." Even the influence of the Hebrews (whose religious life "furnished the historical antecedents of Christianity" and to whom "alone of the peoples of the pre-Christian world was vouchsafed the vision of God" which constitutes their "legacy to mankind"—De Burgh) did not come through Hebrew writing. Much of the New Testament was probably first written down in Greek, and the Greek "Septuagint" version of the Old Testament was the source of the Christian Latin Vulgate until St. Jerome's translation from the Hebrew (about 400 A. D.).

But when we come to Greek civilization we find the tangible beginning of practically all modern culture, even including much of our religion. The very "terms in use to-day to express the distinctions and groupings that form the basis of our understanding of the world—in politics, *monarchy*, *aristocracy*, *democracy*; in literature, *poetry*, *epic*, *lyric*, *dramatic*, *tragedy* and *comedy*; in knowledge, the names of the arts and sciences, *physics*, *astronomy*, *mathematics*, *history*, *philosophy* itself—are all terms invented by the Greeks" (De Burgh).

The Phœnicians had 22 letters with consonantal or semi-vowel values; the Greeks had 27, of which 3 later fell into disuse. Some of the Phœnician semi-vowels became vowels in Greek; other signs were added. The five Greek supplemental letters (*upsilon-omega*) may possibly be identified in Petrie's prehistoric signary, as well as several other strange signs in the peculiar Greek alphabets of Corinth, Melos, etc. (cf. Mentz[1482]). Another gradual change made by the Greeks was in the direction of the writing; at first it ran right to left, like the Semitic; then back and forth, or "Boustrophedon" ("as the cattle turn"); later, left to right.

The antiquity of Greek writing is subject to controversy. Inscriptions are said to have been discovered which are more like the "Scripta Minoa" than Greek inscriptions of the historic period, and Dussaud[1463] finds that the Greek alphabet, as we know it, in some respects resembles the thirteenth-century Byblos inscriptions more closely than it resembles the Moabite stone. When, therefore, we look at our earliest dated inscription, recording the presence at Abu Simbel, in Egypt, of certain Greek mercenary soldiers in the seventh and sixth centuries B. C., we must remember not only that certain extant

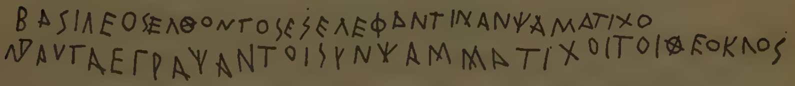


FIG. 15. EARLIEST DATED GREEK INSCRIPTION.

Abu Simbel, Egypt.

inscriptions have been positively assigned to an earlier date (e. g., the "Dipylon vase," of the eighth century B. C., reproduced in Mason [1481], and the inscribed pottery recently discovered in the American excavations on Mount Hymettus), but that, according to Dussaud, Greek writing may be as old as Homer.

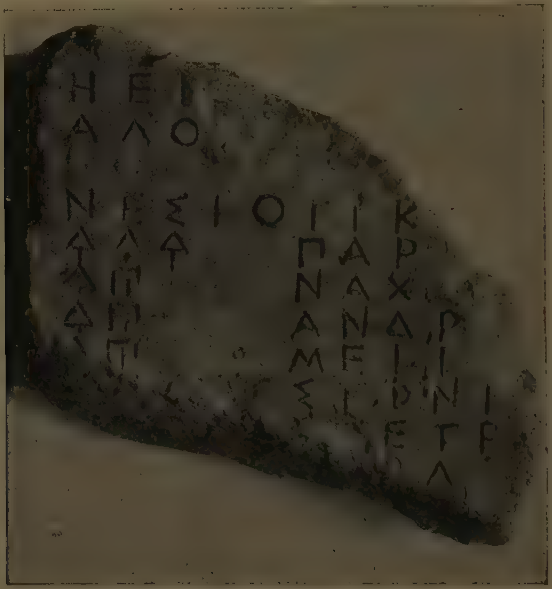


Fig. 16. GREEK INSCRIPTION, 5TH CENTURY B. C.

Athenian Tribute Record.

Metropolitan Museum of Art.

There are references in Homer to writing on tablets, but we have no monuments other than carved, painted, and scratched inscriptions, until the fourth century B. C.—a century after the greatest period of Greek literature. We can hardly suppose that other materials were not used for the transcription of Homer and for the compositions of Sophocles, Plato, Thucydides, Aristophanes, and all the other great authors of the sixth, fifth, and fourth centuries B. C. Surely the intercourse with Egypt, to which our Abu Simbel inscription bears witness, must have led to the use of papyrus in Greece; and, if those scholars are right who believe that Homer's *Iliad* and *Odyssey* were first collected into single poems and written down in the sixth century B. C., it is possible that we should associate this supposed beginning of longer works of Greek literature with a general introduction of papyrus material.

The Abu Simbel inscription may serve as an example of rather crude, primitive Greek writing. The preceding illustration (photograph by permission of the Metropolitan Museum of Art) is a record of the tributes which Athens, at the summit of her power, was able to exact from her weaker allies, and shows a perfected epigraphic writing.

As we have no contemporary manuscripts, we can only speculate as to how nearly they resembled this inscription. This our earliest literary manuscript on papyrus (cf. Schubart [1503]) might lead us to suppose the resemblance fairly close (cf. Mentz [1482]), but the problem needs further study of a number of topics (e. g., the reading ability and proclivities of the Greeks).

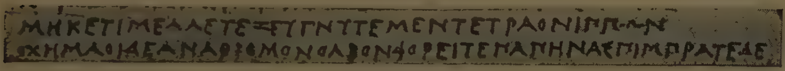


FIG. 17. GREEK LITERARY PAPYRUS, 4TH CENTURY B. C.

Timotheus's "*Persæ.*"

Berlin, State Museum.

The discoveries of Greek papyri by the thousands, during the last forty years, have been sensational events for the students of antiquity—enthusiasts went so far as to speak of them as constituting a nineteenth-century renaissance. The various publications of papyri include over 1,300 literary texts or fragments (Schubart [1498]). The *Persæ* of Timotheus, for example, not only is thought to be our oldest Greek papyrus, but also bridges a previous gap in our knowledge of the development of the form of Greek lyric poetry known as the "nome." It would be rash to assume that all Greek literary MSS. of the period were written in this fashion, on the evidence of a single manuscript, and yet that is all we have.

For our next earliest literary papyrus we have a third-century B. C. fragment of Plato, whose work was the culmination

Fig. 18. GREEK LITERARY PAPYRUS, 3D CENTURY B. C.
Plato's "*Phædo.*"
British Museum.

of the attempts of the Greeks to emancipate philosophy from primitive theology, and stands at the beginning and foundation of modern religion, philosophy, and science. Here we see the greater roundness and fluency of form which one would expect to find in manuscripts (as compared with inscriptions).

Papyri of the following centuries are numerous enough to enable us to follow the development from this facile but somewhat jerky and ill-proportioned penmanship to an increasingly regular and rotund calligraphy, which we are illustrating by a

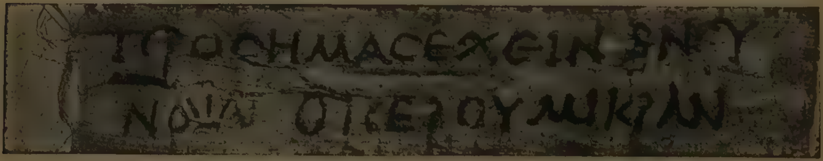


Fig. 19. GREEK LITERARY PAPYRUS, 1ST CENTURY B. C.
Demosthenes.
Princeton University.

couple of lines from the oldest manuscript of Demosthenes, of the first century B. C., reserving, as seems fitting, a MS. of

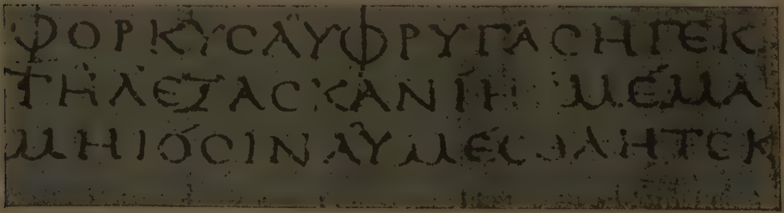


Fig. 20. GREEK LITERARY PAPYRUS, 2D CENTURY.
"Hawara" Homer.
Bodleian Library.

Homer of the second century A. D. to represent perhaps the high-water mark of calligraphy on papyrus.

It is, of course, not to be supposed that all papyrus MSS.—even those containing works of literature—would be as beautifully and painstakingly executed. We have schoolboy copies of lines from great authors, and copies made by scholars or men of affairs for their own use, like the papyrus of Aristotle's *Constitution of the Athenians* (first century A. D.), which was one of the most sensational papyrus discoveries, in that it is the most nearly complete literary work extant on papyrus, in its legal-historical value, as well as in the fact that it recovered to us a hitherto unknown work of Aristotle, "whose works represent the most prodigious intellectual achievement ever connected with any single name" (Taylor [1504]).

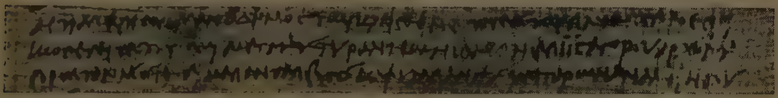


FIG. 21. GREEK INFORMAL LITERARY WRITING, 1ST CENTURY.
Aristotle's "*Constitution of the Athenians.*"
British Museum.

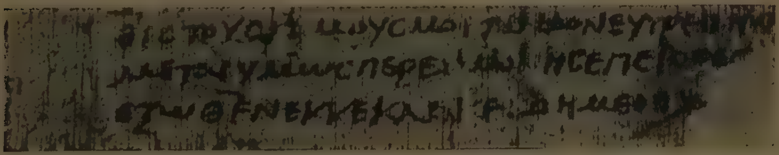


FIG. 22. SLOPING GREEK LITERARY PAPYRUS HAND, 5TH CENTURY.
Menander.
British Museum.

The more rapid and careless style of writing developed into a slanting hand, of which there are many examples in the third to fifth centuries. Our illustration here may well be an extract from a fifth-century papyrus of a comedy of Menander, who had hitherto been known to us only through the Latin versions by Plautus and Terence. (Cf. the similar style in vellum MSS., Fig. 30.)

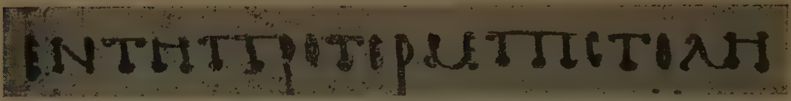


FIG. 23. UPRIGHT GREEK LITERARY PAPYRUS HAND, 8TH CENTURY.
Alexander II, Patriarch of Alexandria. "*Litteræ Paschales.*"
Berlin, State Museum.

The continuance and eventual decadence of the upright literary papyrus hand may be illustrated by the ornate artificiality of the *Litteræ Paschales* and sermons of Alexander II, Patriarch of Alexandria in the eighth century. (Cf. the similar style in vellum MSS.—Figs. 30, 32.)

Important as the literary fragments are, their contribution to our knowledge is insignificant when compared with the thousands of non-literary papyri, which present a wealth of documentary material unequalled for any other period or country until modern times. An extraordinary amount of work has been done in the study of these documents from view-points of political, economic, social, and religious, as well as literary and linguistic history, but there is still much material for students in all these fields.

Our first document-illustration is a marriage contract of the year 311 B. C. This is our sole example of this type in which

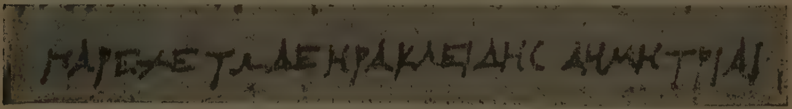


FIG. 24. GREEK DOCUMENTARY PAPYRUS, 311 B. C.
Marriage Contract.
Berlin, State Museum.

Greek law only is involved, and is also our oldest dated Greek manuscript. If you compare this manuscript with the Timotheus fragment, you will notice some of the same differences in letter forms as in the third-century B. C. literary papyri. Although this is not properly a cursive hand, such forms as the *C*-shaped *sigma* and the simplified and slurred form of *omega* serve to indicate the kind of new forms which, in general, appear first in the rapidly changing documentary hand, and later creep into the more conservative literary alphabet.

From the very beginning we have to distinguish two styles, the book hand and the documentary or cursive hand. The former is an artificial calligraphic hand, uniform even in the hands of different scribes and conservative in its progress. It is, however, constantly influenced by the more natural, rapid, so-called *cursive* hand, which has always been used by the private individual for memoranda, letters, documents, etc. The cursive naturally changes much more rapidly. The changes in it are followed much more slowly by the book hand (Thompson [1505]). The two hands constantly react on each other. The cursive hand evolves the letter forms most easily adapted to rapidity and ease of writing (as Berger [1457] says, according to the law of least effort); and, on the other hand, in addition to the gradually changing book hand, new book hands are from time to time evolved out of the cursive through the influence of the earlier book hand. The law of least effort is offset by a striving for legibility and beauty in the case of books written for sale or circulation, as distinguished from documents, memoranda, etc. (The calligraphic tendency in "chancery" hands of all ages shows itself in exaggerated strokes and flourishes —sometimes beautiful but generally intricate rather than legible.)

The cursive papyri have been grouped into three phases, according to the three political administrations in Egypt: the Ptolemaic, 323–30 B. C., the Roman, from 30 B. C. to the organization of the empire by Diocletian at the end of the third century A. D., and the Byzantine (when Egypt was part of the Eastern Roman Empire), extending down to the Arab Conquest in 640 or 643. The hand of the Ptolemaic period has the same general characteristics as the book hand of that period—rather a rigid strength with naturalness and a certain amount of facility. The Roman period is characterized in general by more roundness and increased fluency; the Byzantine period is characterized by artificiality and exaggeration of detail (Kenyon [1471]).

The following illustration is taken from a papyrus in Cornell University (cf. Westermann and Kraemer, *Greek Papyri in the*

Library of Cornell University, New York, 1926). This belongs to a scattered group of documents which were once the archives of a certain Zeno and give us a very good picture of the elaborate ménage of Apollonius, his employer, who was no less a person than the minister of finance of the King of Egypt. It is not difficult to pick out the individual letters, but the tendency to shorten and simplify them and to link them together is obvious.

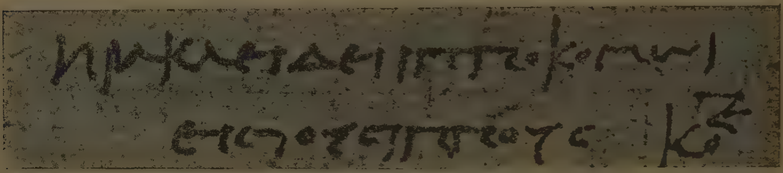


FIG. 25. GREEK DOCUMENTARY PAPYRUS, 3D CENTURY B. C.
From the Zeno Archives, *Cornell University.*

There is more contrast to the familiar capital letters in the following example from the early Roman period (cf. H. I. Bell, *Jews and Christians in Egypt*, London, 1924)—a letter from the Emperor Claudius (41 A. D.) to the people of Alexandria, apropos of their sending an embassy to congratulate him on his accession to the throne, and dealing particularly with the problem of the anti-Jewish riots in Alexandria.

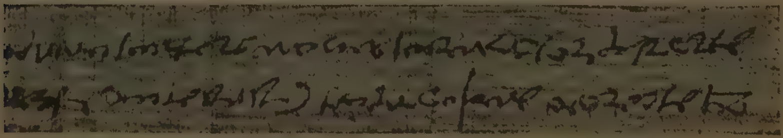


FIG. 26. GREEK DOCUMENTARY PAPYRUS, 1ST CENTURY A. D.
Emperor Claudius to the Alexandrines.
British Museum.

The document selected from the third century, although a small fragment of a half-dozen incomplete lines, constitutes nevertheless a significant portion of an official pronouncement regarding the system of liturgies (i. e., compulsory unpaid performances of public office) by which Rome was able to ad-minister her provinces largely without cost to the imperial government.

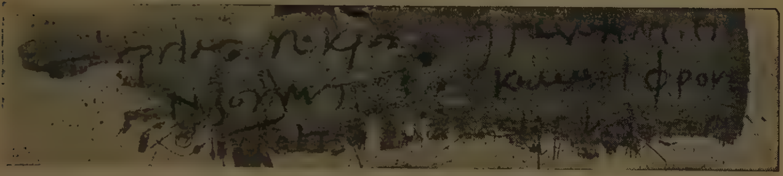


Fig. 27. GREEK DOCUMENTARY PAPYRUS, 3D CENTURY.
Edict (?) Regarding Liturgies.
Princeton University.

In the documentary hand, to a much greater extent than in the literary hand, we have to reckon with individual differences, due to differences of education, occupation, official connection, etc. (cf. Schubart [1499]). Our last illustration of the cursive papyri shows an "official" or "chancery" hand of the sort which seems more or less to have superseded the "business" hand in the course of the fifth to the eighth centuries. The regularity of its long and short letters shows the fundamental difference between minuscule and capital writing, as capital letters are bounded roughly by two parallel lines, whereas minuscules are written in a "four-line scheme."

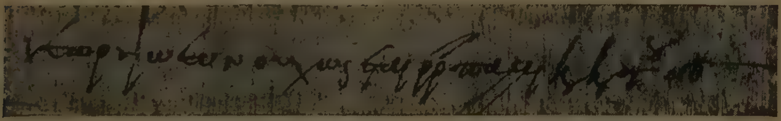


Fig. 28. GREEK DOCUMENTARY PAPYRUS, 8TH CENTURY.
Accounts of Abd-el-Aziz, Arab governor of Egypt.
British Museum.

Our oldest fragments of parchment MSS. date from the second century B. C. (as it happens, just about the time of its legendary inventor, King Attalus of Pergamum), but, aside from a few scattered leaves, our oldest parchment codex is of the fourth century. In the early vellum manuscripts the new material seems to have been a stimulus to artistic writing and illustration. The writing is regular and delicate—the broad, clear, round, so-called *uncial* letters.

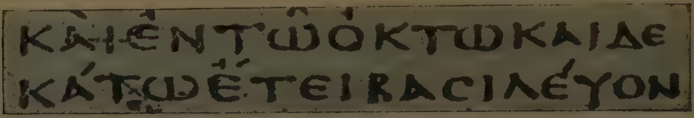


Fig. 29. GREEK UNCIALS ON VELLUM, 4TH CENTURY.
Bible. "Codex Vaticanus."

Symptoms of decadence in uncial calligraphy, but certainly not the decay itself, may be seen in the tendency to terminate letters with ornamental lines or dots, as illustrated by the beautiful sixth-century MS. of Dioscorides's treatise on medicinal plants, which was the authoritative work on botany from the second century throughout the Middle Ages and the early Renaissance; it practically determined both modern plant nomenclature and the general form of modern pharmacopœias, and illustrates the valuable scientific work in Greek of the post-classical period.

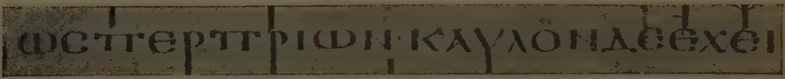


Fig. 30. GREEK UNCIALS ON VELLUM, 6TH CENTURY.
Dioscorides's Treatise on Medicinal Plants.
Vienna, National Library.

The scribes of such manuscripts must have had before them such models as the "Hawara" Homer papyrus (cf. above). At the same time we should note the continuance of the sloping, compressed, and less ornate hand which we saw in the Menander papyrus. (Illustration from *Facsimile of the Washington Manuscript of the Four Gospels in the Freer Collection*, by H. A. Sanders. Ann Arbor, 1912.)

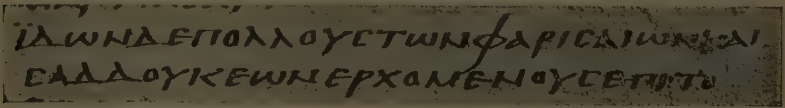


Fig. 31. SLOPING GREEK UNCIALS ON VELLUM, 5TH CENTURY.
Gospels.
Washington, Freer Collection.

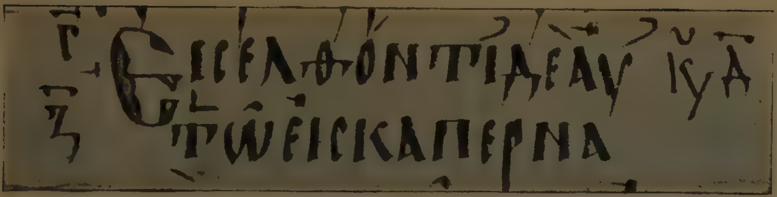


FIG. 32. DECADENT GREEK UNCIALS, 10TH CENTURY.
Gospels.
Vatican Library.

Finally, the union of these decadent tendencies is evident, for example, in a MS. of the Gospels dating from the tenth century, after the general introduction of Greek minuscule writing.

In the minuscule we see the successor of the cursive hand of the papyri, as seen in our latest illustrations of the papyri. In the three periods in which MSS. of the ninth to fifteenth centuries (*Codices veteres, veteriores,* and *vetustissimi*) are classed, the first shows still a certain number of uncial forms here and there through the text; the letters are symmetrically formed, compact and upright. We have selected here two lines from a Vatican MS. of Euclid (ninth or tenth century). "No work presumably, except the Bible, has had such a reign" (Livingstone, *Legacy of Greece*), and it may serve us furthermore as an example of our legacy from the Byzantine Greek scholars, who fostered Greek learning—especially Greek scientific learning—during the centuries when it was largely neglected in the Latin portions of Europe.

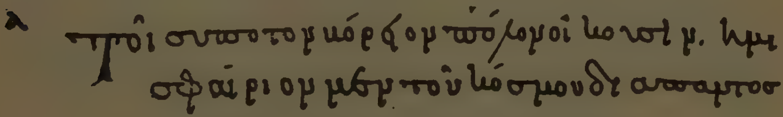


FIG. 33. GREEK MINUSCULE, 9TH OR 10TH CENTURY.
Euclid.
Vatican Library.

The later periods are distinguished from the earlier period by the gradual increase in rapidity of writing and in the use of abbreviations, the slope, the thickening of strokes, the mixture of enlarged letters and uncial forms, and the individual variety of independent hands. Our next example is a facsimile of Herodotus, the "Father of history," and, though a MS. of much later date (fourteenth century), well illustrates the change in the ordinary minuscule hand.

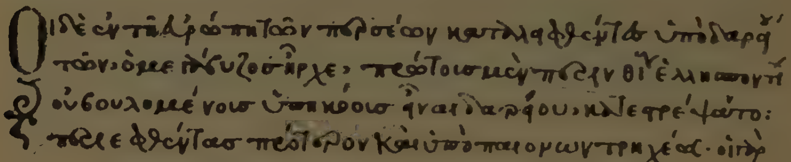


FIG. 34. GREEK MINUSCULE, 14TH CENTURY.
Herodotus.
Florence, Laurentian Library.

This should be compared with the more formal hand used especially in Biblical texts, and, on the other hand, with the cursive minuscule hand which had, of course, been in use from the beginning, but which, in a fairly legible form, came to be more and more used for literary MSS.

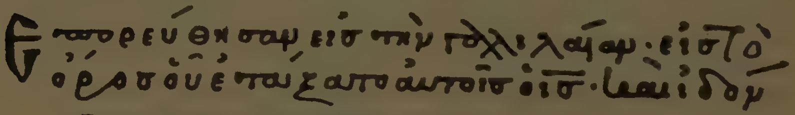


FIG. 35. FORMAL GREEK MINUSCULE, 14TH CENTURY.
Gospels.
British Museum.

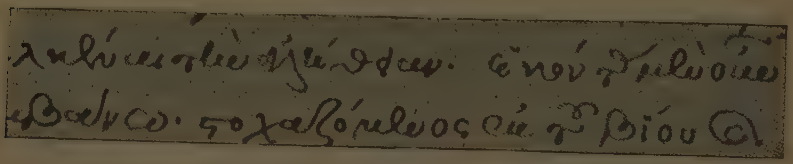


FIG. 36. GREEK MINUSCULE, 15TH CENTURY.
Polybius.
British Museum.

Until the Renaissance and the influx into Italy of Greek Byzantine scholars (after the fall of Constantinople to the Turks), the tradition of Greek culture to Western mediæval

Europe was largely indirect—in some cases through the Arabic (e. g., the work of Averroes, who brought Aristotle's works again into use)—but, in general, almost exclusively through Latin translations, commentaries, anthologies, summaries, and the like. We shall, therefore, merely enumerate some of the alphabets other than Latin which were derived from the Greek: Lydian, Lycian, later Cypriote, Coptic, Glagolitic (used by the Illyrians and Croatians in the ninth and tenth centuries), Slavonic or Cyrillic (adapted from the Greek by St. Cyril in the tenth century), Runes of the fourth to ninth centuries (although one theory associates these with the prehistoric alphabetiform symbols), the Gothic (a combination of Greek, Latin, and Runes by Bishop Ulfilas in the fourth century), and the non-Latin alphabets of Italy (Etruscan, Umbrian, Oscan, etc.).

LATIN WRITING

The Greek alphabets as found in early inscriptions have been classified by Kirchoff[1472], in an "Eastern" and a "Western" group, according to the varying values of certain symbols and the order in which the alphabet is arranged. The "Eastern" became the alphabet of the manuscript (as Greek literature was the product of Ionic and Attic Greek), and, therefore, the alphabet of Greek writing to this day, as also of Russian and Bulgarian. The "Western" was carried to Italy by the colonists from Chalcis, and developed into the Latin alphabet which we use. (Cf. Mentz[1482]. On other possible sources of the Latin alphabet, cf. Grenier[1469].)

The earliest extant monument of Latin writing is the inscription on the "Prænestine fibula," dating perhaps from

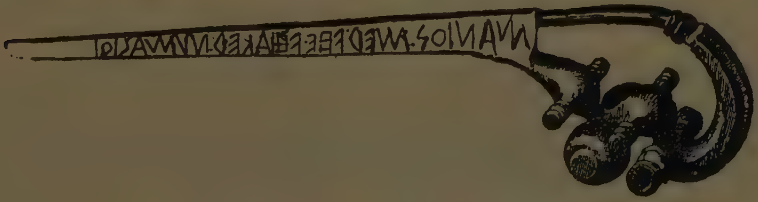


FIG. 37. EARLIEST LATIN WRITING, ABOUT 600 B. C.

Prænestine Fibula.

Rome, Museo Kircheriano.

about 600 B. C., in the so-called archaic alphabet, and written right to left. The Duenos (vase) inscription and the "Black Stone" of the Forum are other famous examples of this archaic alphabet (cf. Sandys 1494).

"The marked characteristics of this alphabet are, first and mainly, the near approach to the parent alphabets, the Greek and Phœnician; the lack of uniformity in the various forms of the same letter [e. g., *A*], also the oblique lines [as in *N*]; together with general irregularity and unevenness" (Egbert 1464).

There were further developments in the Latin alphabet, e. g.: *C* (Greek *gamma*), with the sound of *K* (*K* gradually fell into disuse); *G*, developed from *C* (or the Greek *zeta?*), to indicate the sound of *gamma;* the Greek *zeta* disappeared and then reappeared in the first century B. C. at the end of the alphabet, along with *Y*, in the transliteration of Greek words. The progress of the epigraphic alphabet may be followed through such examples as the sarcophagus of the famous Scipio Barbatus (consul of Rome in 298 B. C.). About the beginning of the Christian era we have to note two epigraphic styles, "monumental" and "actuarial" or "documentary," both of which are well illustrated by the following extract from one of the ancient inscribed chronicles (*Fasti Praenestini*). As these styles occur in MSS. they are spoken of as "square capital" and "rustic capital."

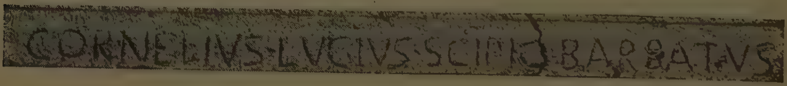


Fig. 38. LATIN INSCRIPTION, 3D CENTURY B. C.
Sarcophagus of Scipio Barbatus.
Vatican Library.

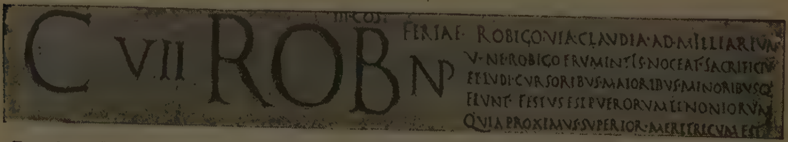

C VII ROB NP
FERIAE· ROBIGO VIA·CLAVDIA·AD·MILLIARIVM
V·NE·ROBIGO FRVMENTIS·NOCEAT·SACRIFICIVM
ET·LVDI·CVRSORIBVS·MAIORIBVS·MINORIBVSQ
FIVNT· FESTVS EST PVERORVM LENONIORVM
QVIA PROXIMVS·SVPERIOR·MERETRICVM EST

Fig. 39. LATIN INSCRIPTION, MONUMENTAL AND DOCUMENTARY STYLES, 1ST CENTURY A. D.
"*Fasti Prænestini.*"
Rome, Museo delle Terme.

A third variety, allowing for difference in writing-material, approaches the cursive hand of the MSS. Our best illustrations of this are from the scratched inscriptions ("graffiti") and the waxed tablets, buried in Pompeii by the eruption of Vesuvius in 79 A. D., and so preserved to modern times. The numerous Pompeian graffiti are a very substantial monument to the kind of people who scribble on walls; here is a line from Ovid:

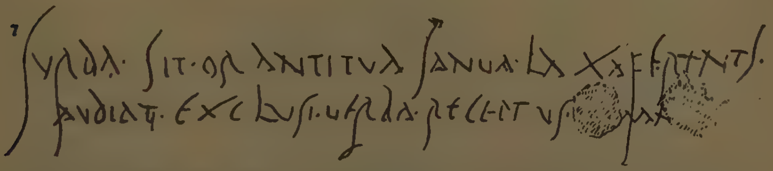


Fig. 40. LATIN CURSIVE INSCRIPTION, "GRAFFITO," 1ST CENTURY. Ovid's "*Amores.*"
Naples, National Museum.

The waxed tablets were the records of a banker, L. Cæcilius Jucundus, whose name (in the dative case) was written thus:

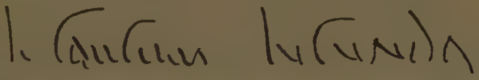


Fig. 41. LATIN CURSIVE WRITING ON WAXED TABLET, 1ST CENTURY.
Naples, National Museum.

The letter forms of the graffiti and waxed tablets resemble those of the actuarial inscriptions (rustic capitals), with a variety of tendencies toward short disconnected strokes (like II for *E*), toward rounded forms (later referred to as "uncial"), and toward abbreviated and hastily made letters, roughly described as cursive.

Our earliest Latin papyri show the same rustic, cursive, and, occasionally, uncial forms. We pass over the oldest papyrus (17–14 B. C.? in the Vienna State Library, cf. Wessely [1509]), in favor of one slightly later, but also of the Augustan period, which is now in this country (Western Reserve University. Cf. *Oxyrhynchus Papyri*, v. 4, pl. 8).

The problem of what Latin writing was like, say in the time

Fig. 42. LATIN CURSIVE WRITING ON PAPYRUS, EARLY 1ST CENTURY.

Pay-roll of Weavers.

Western Reserve University.

of Ennius and Plautus, or the time of Cicero and Cæsar, is not unlike the problem of Greek writing in the time before the Hellenistic period, but we shall not be far wrong if we picture it to ourselves as somewhat like the following illustrations from papyri from Herculaneum, preserved, like our Pompeian monuments, by the eruption of Vesuvius in 79 A. D.: (1) A handsome rustic capital fragment, probably of some Latin oration. (2) A lighter, more cursively inclined hand, from a fragmentary poem on the Battle of Actium.

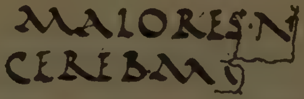


Fig. 43. LATIN RUSTIC CAPITALS ON PAPYRUS, 1ST CENTURY.

Oratorical Fragment.

Naples, National Museum.

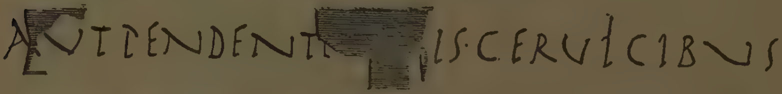


Fig. 44. INFORMAL LATIN RUSTIC CAPITALS ON PAPYRUS, 1ST CENTURY.

Poem on the Battle of Actium.

Naples, National Museum.

It is not impossible that uncial or "mixed uncial" MSS. also were written in the first century A. D., as the uncial letter forms occur in the Pompeian inscriptions (but cf. Schiaparelli[1497]) and as our next earliest literary fragment shows a

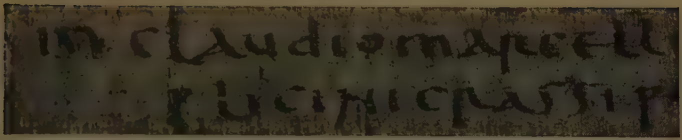
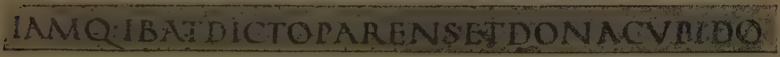


Fig. 45. LATIN "MIXED UNCIALS" ON PAPYRUS, 3D CENTURY.
Epitome of Livy.
From Oxyrhynchus. *British Museum.*

number of uncial forms. Nor is it at all unlikely that there may have been *de luxe* copies done in the monumental square capitals such as we find in some half-dozen fragmentary vellum codices thought to date from the fourth century.



IAMQ·IBAT DICTO PARENS ET DONA CVPIDO

Fig. 46. LATIN SQUARE CAPITALS ON VELLUM, 4TH CENTURY.
Vergil.
Stiftsbibliothek, St. Gall, Switzerland.

But the more usual literary hand, down to the fifth century, was the rustic capital, which is represented to us in some twenty-three manuscripts, e. g., the "Codex Bembinus" of Terence (fourth century) [1503].

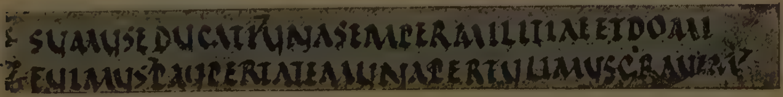


Fig. 47. LATIN RUSTIC CAPITALS ON VELLUM, 4TH CENTURY.
Terence, from "Codex Bembinus."
Vatican Library.

The date of these earliest vellum manuscripts corresponds to that of the earliest Greek codices, and they show the same characteristics of calligraphy. It is interesting to note that their content is most frequently Vergil, whereas our earliest Greek codices were Bibles.

Our earliest Latin Bible (the Vercelli Gospels) also dates from the fourth century and is one of our earliest uncial MSS.

After the fifth century the square and rustic capitals were little used otherwise than for decorative or "display" purposes;

and the book hand preferred from the fifth to the seventh century seems to have been the uncial. The development of the uncial hand is closely parallel to the development of the Greek uncial in the same period. There are the same tendencies: ornateness, artificiality, and imitativeness. Nevertheless, the most beautiful and characteristic uncial forms (especially those of *A*, *D*, *E*, and *M*) are seen at their best in some MSS. of the seventh century, such as the following illustration from a MS. of St. Augustine. Like the square and rustic capitals, the later use of uncials was for ornamentation and display only.

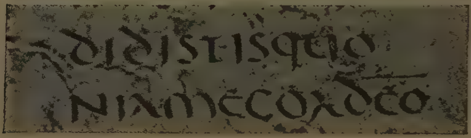


FIG. 48. LATIN UNCIALS ON VELLUM, 4TH CENTURY.
Gospels.
Archivio Capitolare Eusebiano, Vercelli.

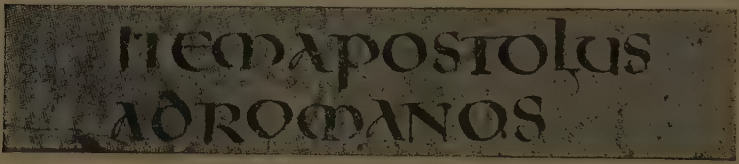


FIG. 49. LATIN UNCIALS ON VELLUM, 7TH CENTURY.
St. Augustine.
Ashburnham Library.

Meanwhile, the development of the cursive hand from the first to the seventh centuries has been preserved to us in a much more complete and consecutive series of monuments; and we can trace in them not only the origin of many of the uncial characters, but also—and this is the great importance of the Roman cursive hand—the development of the basic forms of our modern minuscule alphabet and the regular distinction of high and low letters, which is the most outstanding characteristic of minuscule writing.

This example is of a very conservative type, but is fairly characteristic of third-century cursive letter forms, and is particularly interesting as a unique example of the use of Roman cursive in a literary work (e. g., note the cursive *b* and *d*). (*Fayum Papyri*, pl. 6.) It also claims a great deal of interest as a manuscript nearly, if not quite, contemporary with the author's life, and in that its author was the famous jurist Ulpian. Roman law as codified in the sixth century under the Emperor Justinian is generally considered Rome's greatest original contribution to civilization; and Ulpian "furnished the material for one-third of Justinian's *Digest*" (De Burgh[1460]).

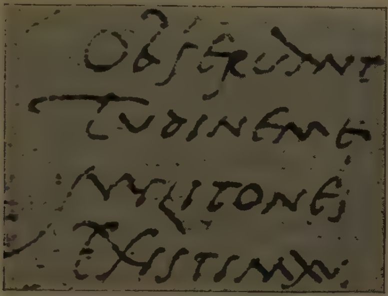


FIG. 50. LATIN LITERARY CURSIVE ON PAPYRUS, 2D OR 3D CENTURY.

Ulpian.

Bodleian Library.

The following extract from a fourth-century letter, and, much later, a couple of words from a deed of the sixth or seventh century, from Ravenna, illustrate the fluency to which

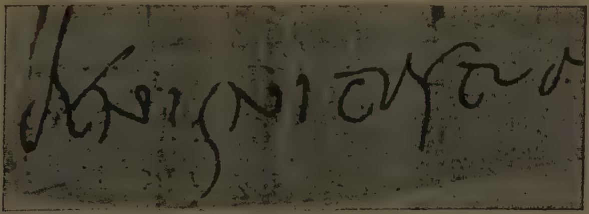


FIG. 51. LATIN DOCUMENTARY CURSIVE ON PAPYRUS, 4TH CENTURY.

Official Letter of Recommendation.

Strassburg University Library.

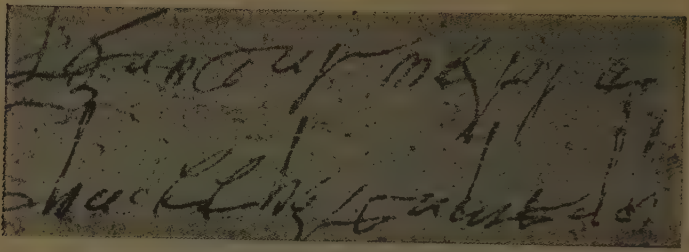


Fig. 52. LATIN DOCUMENTARY CURSIVE ON PAPYRUS, 6TH OR 7TH CENTURY.

Deed of Gift.

Princeton University, Garrett Collection.

this style of writing attained, as well as the "four-line scheme" of the high and low letters, which gives it a general appearance not so unlike our own cursive writing.

The few illustrations we have permitted ourselves have fallen far short of a survey of either writing or its content in classical antiquity. With the exception of the fragmentary papyri, both Greek and Latin palæography are mediæval studies. Both letters and literature are the direct legacy of the Middle Ages. Taylor's entrancing *Mediæval Mind* [1504] distinguishes three main elements: the classical, of which we have given a few examples, both Greek and Latin; the Christian, which comes to us in the most beautiful of all manuscripts (those of the Bible, of the Church Fathers, of liturgical and devotional works, etc.); and the barbarian element (sagas, romances, etc.). Greek culture tended to maintain itself longer in the Byzantine Empire than elsewhere, and, naturally, Roman literature persists longest in Italy, while the new peoples show their contributions most clearly in less Romanized countries, such as Scandinavia, Germany, and England.

The earlier Latin hands all originated in Italy, and the next step in the development toward the minuscule was also an Italian contribution. The uncial literary hand was replaced by the *mixed uncial,* which we should probably look upon as a new composite of uncial forms and minuscule forms developed in the cursive hand, though a continuous development from such mixed uncials as we saw in the Oxyrhynchus Livy is not impossible. Excepting the Livy fragment, the earliest examples are marginal notes added by scholars to "capital" manuscripts, in a negligent mixed uncial style. The proportion of uncials and minuscules (as developed in the cursive) varies with the individual scribe. Where the minuscule predominated, the writing is designated as "half-uncial," or, occasionally, "pre-Caroline" minuscule or "Roman" minuscule. In the following extract from the Theodosian code of laws (only less famous than Justinian's Code and the "chief source of legal tradition in the West until the late Middle Ages"—DeBurgh), we may see the intermingling of cursive forms of *g*, *r*, *s*, etc., with the uncial-capital forms of *a*, *e*, *n*, etc.

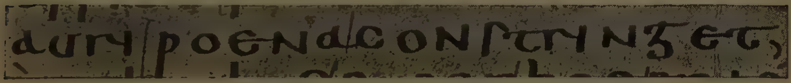


Fig. 53. LATIN HALF-UNCIALS, 6TH CENTURY.
Theodosian Code.
Vatican Library.

The half-uncial writing was probably still nearer to the uncial-capital than to the minuscule, when it came to Ireland with St. Patrick and other missionaries in the fifth century. One of the most beautifully written and ornamented Bible MSS. in the world, the Book of Kells (seventh century, cf. reproduction in Palæographical Society [1487]), in the so-called "round" Irish hand, shows the same mixed-uncial forms, but has the general appearance of the two-line scheme of the majuscule hand. Even in this round hand there is a certain angular treatment—e. g., in the angular serifs—which is characteristic of all Irish, and, in less degree, English hands of this period. The "pointed" hand, as we see it in this eighth-century English MS. of Bede, "the Venerable, and, we may add, the still beloved" (Taylor [1504]) more nearly approaches the minuscule.

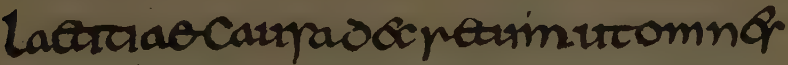


Fig. 54. "INSULAR" POINTED HALF-UNCIALS, 8TH CENTURY.
Bede.
Cambridge University.

A line from *Beowulf* (in Anglo-Saxon) will illustrate the continuance of the insular hand even after the advent of the Caroline minuscule (ninth century), and, incidentally, the "barbarian" literary contributions to mediæval civilization.

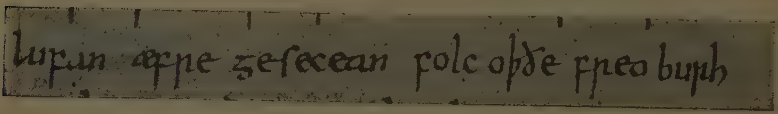


FIG. 55. INSULAR MINUSCULE HAND, ABOUT 1000 A. D.
"*Beowulf*."
British Museum.

The continental hands of the seventh to ninth centuries show a great variety in matters of detail, not merely in the varying proportion of uncial, cursive, and minuscule forms, but also in styles developed in the many different *scriptoria*. In the Middle Ages these *scriptoria* for the most part passed out of the hands of the slaves or employees of rich Romans and book-dealers into the monasteries; and palæographers are at present inclined more or less to replace the older classification of "national hands" ("Lombardic," chiefly in Italy; "Merovingian," chiefly in France; and "Visigothic," in Spain), with names identifying the scripts with their place of origin (Beneventum, Bobbio, Corbie, Luxeuil, St. Gall, etc). Lowe [1479] includes the most authoritative and readable account (with beautiful, though small, facsimiles) of the general development of this difficult period of Latin writing. For fuller detail and bibliography, cf. Lehmann [1476] and articles in *Palæographia latina* [1486].

As in styles of writing, so in content there is a broad general similarity. The assimilation of past intellectual achievements had been going on from the time of the extension of the civilized world under Alexander the Great (fourth century B. C.), and throughout the Roman and early mediæval periods, but was never so much the chief problem of education as in the centuries with whose palæography we are now dealing. Taylor [1504] closes the creative epoch of ancient civilization with the death of St. Augustine, when "the sum of Christian dogma was well-nigh made up." Three stages in the ancient and mediæval process of assimilation, by no means without their modern counterparts, are: the commentary, designed to aid in understanding the ancient texts individually; the "sentences," extracts, anthologies; encyclopædias designed to teach at least something of everything; and the *summæ*, summaries, syntheses, attempting to unify, combine, and condense the legacy of previous ages.

We have had occasion to mention the encyclopædic work of Pliny the Elder (first century); and we have seen a few words of the Venerable Bede, who "incorporated in his writings practically the total sum of knowledge then accessible in western Europe" (Taylor [1504]). The following is an extract from one of the greatest mediæval encyclopædias, Isidore of Seville's *Etymologiæ*, and illustrates the north Italian hand of the eighth to ninth centuries (perhaps written at Vercelli).

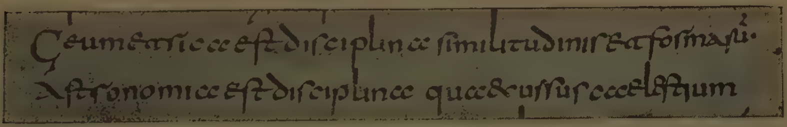


FIG. 56. NORTH ITALIAN MINUSCULE, 8TH OR 9TH CENTURY.
Isidore of Seville's "*Etymologiæ*."
Vatican Library.

In southern Italy—at Beneventum, Monte Cassino, etc.—a very distinct minuscule was evolved from the cursive (cf. Lowe [1479]). Our illustration is a selection from the famous monastic Rule of St. Benedict, an important document in the history of book production and libraries.

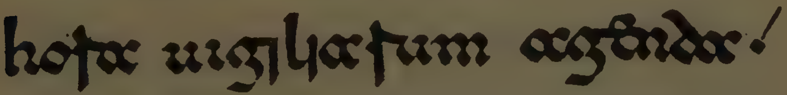


FIG. 57. BENEVENTAN MINUSCULE, 11TH CENTURY.
"*Rule*" of St. Benedict.
Monte Cassino Abbey.

The letter forms of these "national" hands are those of Roman cursive, but their general appearance (narrow, vertical, or even back-hand strokes), is strikingly different from the facile, easy-going right slant of the Roman cursive. The pen-man's skill manifests itself in artificial exaggerations, contrast of heavy and light strokes, flourishes, etc. The perfected Beneventan hand, with its rigid regularity, seems a far cry from its ancestor, the cursive. Visigothic is characterized further by its angularity and certain individual forms, like the *q*-shaped *g*. The Visigothic book hand of the ninth to twelfth centuries is none the less a beautiful hand, with its high-shouldered and peaked letters and the thickened stems of its tall letters.

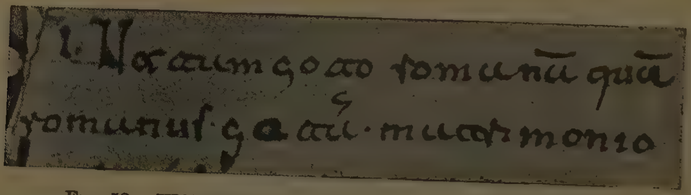


FIG. 58. VISIGOTHIC MINUSCULE, 9TH CENTURY.
Laws of the Visigoths, etc.
Paris, National Library.

Merovingian has the back-hand and compressive tendency of the Visigothic, while the letters themselves more resemble the north Italian in roundness and lengthened strokes. Its book hand has perhaps the handsomest clubbed vertical strokes and has less of the exaggerated compression and length. Our example here ("Luxeuil type") is taken from the *Moralia* of Pope Gregory the Great, the last of the Latin Fathers, in whom "the converging currents—decadence and barbarism—meet and join" (Taylor [1504]).

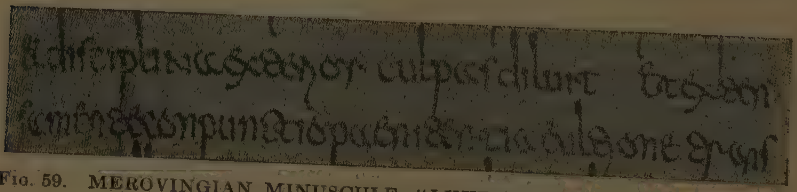
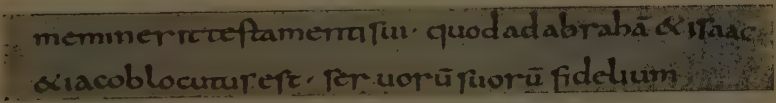


FIG. 59. MEROVINGIAN MINUSCULE, "LUXEUIL TYPE," 7TH CENTURY.
Gregory the Great, "*Moralia.*"
British Museum.

We cannot at present undertake to say which of these various national hands (including the Irish-English) was the chief basis of the Caroline minuscule—the question is an active one among palæographers. The fact that Alcuin of York, "next to Charles [i. e., Charlemagne] himself, was the guiding spirit of the intellectual revival" (Taylor[1504]) in the ninth century, formerly led to an over-emphasis on the direct influence of the insular minuscule. But there is no necessity to suppose the insular influence stronger at this time than earlier, since from the latter part of the sixth century on, St. Columba and other Irish missionary monks had spread throughout western Europe, and founded, directly or indirectly, monasteries at Luxeuil, at Bobbio in Italy, in Switzerland at St. Gall, and in Germany at Fulda, etc. "Alcuin himself, we know, never got to France until after the birth of the Caroline minuscule" (Lowe[1479]).

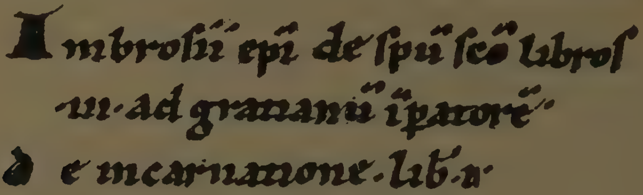
The earliest dated MS. in the Caroline minuscule is the Bible written for Abbot Maurdramus (died 778), and comes from the monastery of Corbie (cf. Lowe[1479]).



meminerit teſtamenti ſui · quod ad abrahã & iſaac
& iacob locutus eſt · ſer uorũ ſuorũ fidelium

FIG. 60. EARLY CAROLINE MINUSCULE OF CORBIE, 8TH CENTURY.
Bible written for Abbot Maurdramus.
Amiens, City Library.

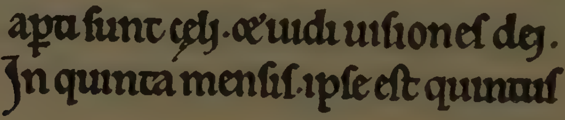
In general, the early Caroline minuscules (ninth and tenth centuries) show characteristic contrast of fine and heavy strokes, with a tendency to thicken or club the stems of tall letters, a characteristic carried over from the Merovingian. As a general rule, in the tenth century the writing is of a thinner type. Certain characteristic letters, particularly the open and closed *a*, can be distinguished. In the eleventh century there is more systematic separation of words, more methodical abbreviation; the writing becomes more rigid and exact (a tendency which culminated in the thirteenth century); and an increasing tendency toward angularity brings us gradually into the twelfth-century Gothic. The twelfth century is called the finest period of mediæval writing, a period of large volumes, of large writing, fine initials, and illuminated borders. The Gothic tendency may be illustrated for the eleventh century by an entry in a mediæval library catalogue: and for the twelfth century by



Ambroſii epi de ſpu ſco libroſ
.iii. ad gratianu ipatore.
De incarnatione. lib. i.

FIG. 61. MINUSCULE, 11TH CENTURY.
Lobbes Abbey Library Catalogue.
British Museum.

a Biblical MS. in the more formal calligraphic style.



apti ſunt celi. & uidi uiſioneſ dei.
Jn quinta menſiſ. ipſe eſt quintuſ

FIG. 62. GOTHIC MINUSCULE, 12TH CENTURY.
Bible.
Paris, Ste. Geneviève Library.

Less formal than Biblical MSS., and illustrative of national variations of the Gothic in the thirteenth and fourteenth centuries, are the following examples of English, French, and German MSS. The first (*Sumer is icumen in*) is also famous as our oldest monument of singing in harmony.

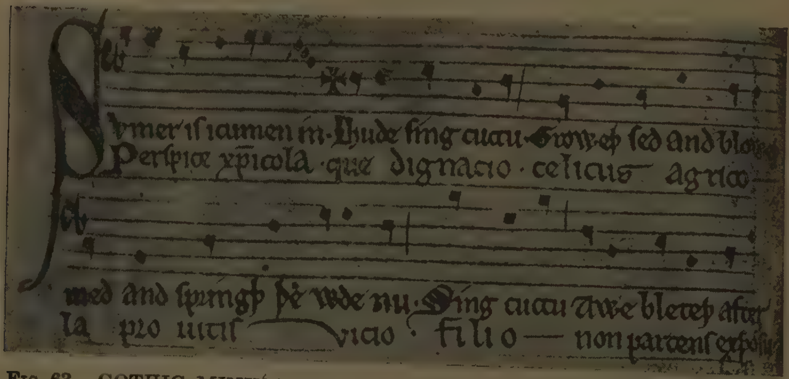
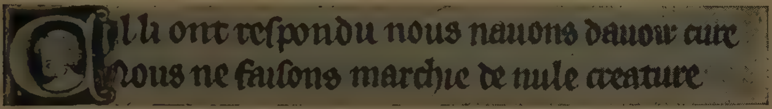

Sumer iſ icumen in. Lhude ſing cuccu. Groweþ ſed and blow-
Perſpice xpicola que dignacio celicus agrico-
med and ſpringþ þe wde nu. Sing cuccu Awe bleteþ after
la pro uitiſ vicio filio non parcenſ expoſu-

FIG. 63. GOTHIC MINUSCULE AND MUSICAL NOTATION, ENGLAND, 13TH CENTURY.
"*Sumer is icumen in.*"
British Museum.

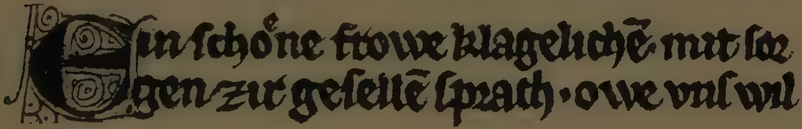
Our French example (*Romance of Alexander the Great*) is not only a vernacular French manuscript, written by a French hand, but also illustrates the important mediæval development of the literary romance, the plot in this case originating perhaps in genuine history but gradually becoming a fabulous romance at the hands of the Greek Orient and mediæval Europe.



Cil li ont reſpondu nous nauons dauoir cure
Nous ne faiſons marchie de nule creature

Fig. 64. GOTHIC MINUSCULE, FRANCE, 14TH CENTURY.
"*Romance of Alexander the Great.*"
Bodleian Library.

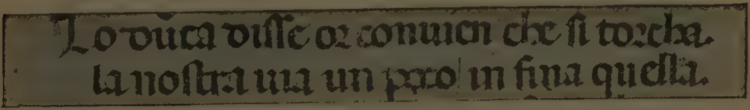
German Gothic writing and vernacular literature may be illustrated by a line from one of the poems found in the "Manesse" MS. (Cf. the beautiful complete reproduction in color by the Insel Verlag, Leipsic.)



Ein ſchoͤne frowe klagelichē mit ſor
gen zir geſellē ſprach · owe vil ſwil

Fig. 65. GOTHIC MINUSCULE, GERMANY, 15TH CENTURY.
Minstrel Poetry ("Manesse" MS.).
Heidelberg University.

For Italian writing and literature, Dante's *Divine Comedy* is the most obvious selection.



Lo duca diſſe or conuien che ſi torcha.
la noſtra uia un poco in fina quella.

Fig. 66. GOTHIC MINUSCULE, ITALY, 14TH CENTURY.
Dante's "*Divine Comedy.*"
British Museum.

There is most similarity between England, France, and the Netherlands; Italy, South France, and Spain form another family group; and Germany is developing a type of its own.

The three groups may be roughly compared in the matter of roundness and angularity. The Italian is the round hand, French and English hands are more vertical, with heavy strokes. Germany developed a more and more angular style, of which the modern German "Fraktur" letters, both written and printed, are the descendants. In the course of the fourteenth century individual variety increased. In the fifteenth century the deterioration begins; we have the confusion of different styles (for instance, a mixture of cursive and book-hand), and where calligraphy exists it is of an artificial character.

The renaissance of the classics and the earlier manuscripts led to a revival of the Caroline minuscule, in the so-called *humanistic* hand, which is sometimes difficult to distinguish from the Caroline, except in occasional Gothic forms like a and *t*. From the bibliographical point of view, the humanistic writing is perhaps the greatest of mediæval legacies, as it supplied the fundamental letter forms which our printers now use (cf. fig. 76, chap. 13).

Our selection from these beautiful MSS. should not be allowed to leave the impression that all were like this. For the Gothic period, for example, palæographers sometimes speak of half a dozen different types of writing, ranging all the way from the most formal "church," "missal," or "text" Gothic to the most rapid and illegible cursive. We shall have occasion to illustrate other local and literary varieties when we come to compare our MSS. with our early printed books (chap. 13);

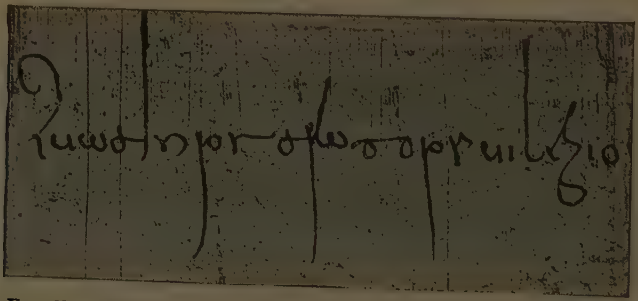


FIG. 67. PAPAL CURSIVE ON PAPYRUS, 9TH CENTURY.

Papal Grant.

Paris, National Library.

but give here a slight indication of the great variety of documentary cursive hands in which so much of the historian's source of material is contained. Beginning with the pre-Caroline period, where we left our account of Roman cursive writing, we give here as an example of the many official, "chancery" hands, which developed from it, a papal document of the ninth century. (Note the peculiar *Q*, *a*, and *e* in the first word, fig. 67.)

A Merovingian charter hand may be illustrated by Charlemagne's name and titles as they appear in a charter of the year 781.

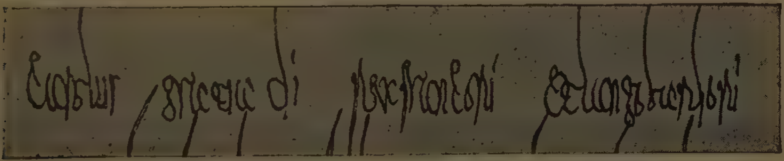


FIG. 68. MEROVINGIAN CURSIVE, 8TH CENTURY.
Charter of Charlemagne.
Marburg, State Archives.

Passing over the other "national" hands and the Caroline period, two or three documents of the Gothic period will serve to illustrate the historian's need of skill and experience in decipherment. For an English hand, a line from the *Magna Charta* (A. D. 1215):

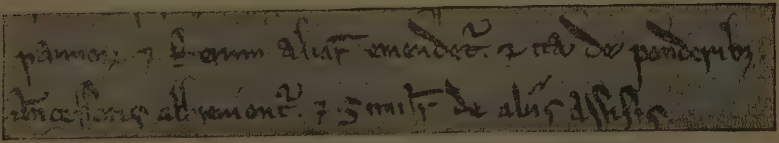


FIG. 69. ENGLISH CURSIVE, 13TH CENTURY.
"Magna Charta."
British Museum.

For a German hand, of a later period and stage of cursive development, a document which has a particular interest for

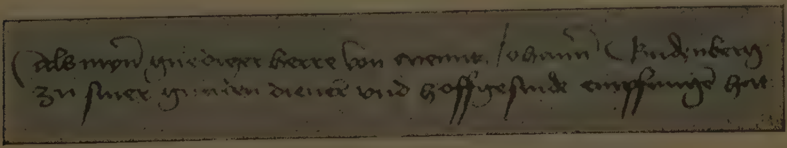


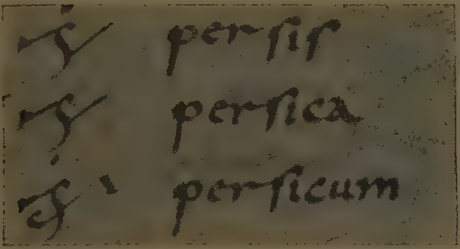
FIG. 70. GERMAN CURSIVE, 15TH CENTURY.
Gutenberg Document.
Würzburg, State Archives.

us in that it has to do with the problematical person, Johann Gutenberg, reputed inventor of printing.

ABBREVIATIONS. STENOGRAPHY

Rapid writing went even beyond the cursive formation and linking of letters. Both Greeks and Romans had systems of abbreviation and of stenography. No consecutive history of Greek abbreviation has as yet been written. From the very beginning there was systematic use of initials or the first parts of words—i. e., "abbreviation by suspension." The other style of abbreviation, known as "contraction" (i. e., by the omission of letters from the middle of the word), seems to have originated in the Hebrew abbreviation for the ineffable name of Jehovah, and was then used for other sacred names (cf. Traube [1506]). The Greek scribes were here limited to a total of fifteen. In Latin the same general development is true, except that the principle of contraction was extended to general writing, especially in documents and legal texts (cf. Schiaparelli [1496] and Lindsay [1478]). Many Latin texts of the thirteenth century fairly bristle with abbreviations.

After abbreviations, some of which are of stenographic character, we may look for stenography. The earliest examples of Greek shorthand (papyri of the second and third centuries) still remain undeciphered. Two other groups (one of papyri between the fourth and eighth centuries, the other belonging to the tenth century) have been studied, with the conclusion that the system seems to have been a syllabic one, having no great advantage over ordinary writing in the matter of speed but effecting economy of space. Latin shorthand is associated with a freedman of Cicero, named Tiro, and seems to have been taught in schools in the Roman Empire. The Tironian system was originally a symbol for a word, the symbols being, for the most part, letters or parts of letters. There were also mediæval syllabic systems. There are no ancient monuments of Tironian notes, but the tradition is strong, and we find occasional examples of them in the eighth and ninth centuries. In the ninth and tenth centuries they were used by revisers and annotators. They disappeared, for the most part, in the eleventh century.



perſiſ
perſica
perſicum

Fig. 71. LATIN SHORTHAND, 10TH CENTURY.
Tironian Lexicon.
British Museum.

A shorthand alphabet of simple geometric lines and curves was invented in England about 1200, and, from the time of John Willis (seventeenth century), simple lines and curves have been the basis of alphabetical or even more strictly phonetic systems (cf. Mentz [1481.2]).

CRYPTOGRAPHY

Cryptography, or writing in cipher, is another special topic which deserves little more than mention here. We have traditions that Cæsar and Augustus had their own methods of substituting one word or letter for another, to conceal their real meaning. Other mediæval methods involve the use of numerals, shorthand, or other arbitrary symbols. Probably the most interesting case at the present time is the MS. now owned by Mr. W. M. Voynich, of New York, who has been good enough to permit the following reproduction from it. Its great im-

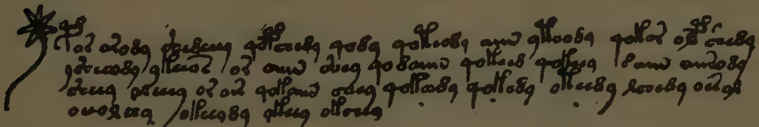


Fig. 72. CRYPTOGRAPHY, 12TH CENTURY.
Attributed to Roger Bacon.
Property of Wilfred M. Voynich, of New York.

portance lies in the probability that it is an autograph MS. of Roger Bacon. (Cf. key and partial translation by the late Professor Newbold.)

AUTOGRAPHS. PENMANSHIP. GRAPHOLOGY

Most histories of writing end with the invention of printing, but modern MSS., if in less degree, have nevertheless great historic, literary, and sentimental interest. The collectors of modern autographs and manuscripts know this, and we owe to their interest the preservation of many archives of important historical documents, and of literary MSS. which cannot be neglected in establishing the correct text, even of a modern author like Charlotte Brontë (cf. her *Complete Poems*, ed. by Clement Shorter, London, 1922).

The study of handwriting since the invention of printing is as yet in its infancy, and we can only call attention to its various phases of interest. Penmanship itself is still tolerated in our school curricula, and we have noted with great interest the recent return to mediæval models. "Manuscript writing," it is said, has not only the obvious advantages of legibility and beauty, but also that of speed (it is easier but not more rapid to connect letters with cursive strokes than to lift the pen between disconnected strokes). Lettering has never died out as a fine art, and appears also as a practical art in advertising, etc.

It is no news that there are recognizable differences in style of writing between different nationalities, sexes, professions, and individuals. But the study of the relation of these differences to differences in national, sexual, professional, and individual characteristics—"Graphology"—has been generally rated on a par with astrology, palmistry, and the like. Whether or not such books as Downey [1462], Saudek [1495], and others will bring about a recognition of graphology as a legitimate branch of psychology, such books as Osborn [1485] and Lee and Abbey [1474] seem to make handwriting at least as significant as finger-prints.

For an example of the possible variation of an individual hand, according to state of mind or health, we may cite the much-discussed Shakespeare signatures. Leftwich [1475] has studied them from the pathological point of view and diagnosed Shakespeare's disease as writer's cramp! (If his diagnosis is correct, he adds, this may solve the unexplained retirement to Stratford.)

CHAPTER XIII

HISTORY OF PRINTING

RELATION TO VARIOUS SUBJECTS

The history of printing, no less than the history of writing, is a highly specialized study, but, also like the history of writing, should be familiar to students in every field. There are many facts of the mere external history of the invention and spread of the art which concern students in special fields. The student of Greek still suffers from the fact that Aldus's Greek type was modelled on a poor style of Greek handwriting, and the fact that most of the continental printers have made but conservative improvements on Aldus (cf. Scholderer [1565]). The Orientalist will be interested in when, where, and how the various Oriental languages were put into type; in the fact that the spread of printing, beginning at Mainz about 1450, reached Abyssinia as lately as 1923, etc. Our appendix includes a few examples of studies of special types used in printing maps, music, etc. The presses of Regiomontanus and Tycho Brahe have their place in the history of astronomy. Students of the natural sciences should recognize the contributions made to science through the early presses in Basle (Froben, the Officina Isingriniana, etc.). Classical scholars acknowledge their debt to such scholar-printers as Aldus and Paulus Manutius, the Estiennes, and the Didots. Historians, more than all, have to reckon with the important part played by printers in certain periods of history, like Hans Lufft, of Wittenberg, and Christoph Froschauer, of Zurich, in the Reformation.* In fact, we have speculated on the feasibility of a series of collected facsimiles, each illustrating the history of book-production in a special field of learning. The many histories of the various branches of learning supply the student with the fundamental data for such a method of approach to the history of printing, but rarely give full information as to the number and imprint dates of the various editions, their publishers, printers, typographical style, etc. Bibliographies and library catalogues are, of course, more precise. The combined features of selection, description, and facsimile illustration are rare, except within narrow chronological limits, e. g., in Osler's *Incunabula medica* [1424].

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* Martin Luther said of printing: "It is the highest and ultimate gift whereby God advances the cause of his Gospel" (cf. Barwick, in Bibliographical Society *Transactions*, v. 3).

In many cases a fairly comprehensive survey of the history of printing is possible in the editions of a single author or work still being reprinted; e. g., an exhibition catalogue of the John Rylands Library [729] includes twenty facsimiles illustrating the history of the transmission of the Bible; Updike [1571] calls attention to the *Iconografía de las ediciones del Quijote* (Barcelona, 1905) from 1605 to 1905—"almost a history of Spanish printing after 1600"; Thomas-Stanford gives facsimiles from thirteen early editions of Euclid [1424]; and the student will think immediately of many other authors suitable for similar treatment—Horace, Cicero, Ptolemy's *Geography*, from the classical period; Dante, the *Roman de la Rose*, Chaucer, from the Middle Ages; the *Imitatio Christi* from the fifteenth century (known in over 1,500 editions); Erasmus, Luther, Rabelais, Montaigne, Spenser, More's *Utopia*, Mercator, from the sixteenth century; etc. The year 1927 witnessed exhibitions in honor of the two thousandth anniversary of Vergil, the two hundred and fiftieth anniversary of Spinoza's death, the bicentenary of Sir Isaac Newton, the centenary of Beethoven, etc.

Further, as in the case of writing, the most minute mechanical and artistic details are sometimes decisive factors in determining the historical authenticity or the literary-textual value of printed source material; and the student who is likely to have to do with an early printed book will profit much from Haebler's introductory *Handbuch der Inkunabelkunde* [1532], McKerrow's *Introduction to Bibliography for Literary Students* [1542], Bohatta's *Einführung in die Buchkunde* [1517] (with its extremely useful bibliographical references), and other, more special monographs on special types, title-pages, colophons, signatures, corrections, cancels, reprints, paper and water-marks, printer's marks, etc. (e. g., in Fleuron [1528]).

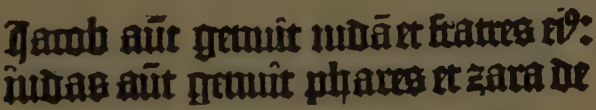
Just as the period of gothic minuscule writing coincides with the period of Gothic architecture, certain styles of printing may be brought into relation with periods in the history of art—e. g., Updike [1571] speaks of a Louis XIV style. The emphasis in recent books on the history of printing has been largely on printing as an art. Great prominence is given to the individual masters of the art from Gutenberg, Ratdolt, and Jenson of the fifteenth century, to William Morris, Cobden-Sanderson, Updike, Rogers, etc., of the nineteenth and twentieth centuries. Whether or not the ordinary student finds his reading hampered or helped by all the variety of type forms invented, revived, or adapted by our contemporary "fine" printers, he should not fail to realize, through comparison and study of modern and older books, the great service being rendered in the way of increased legibility as well as beauty; and, as a prospective author, he should interest himself in the medium through which his work is to be presented to the public (cf. Jackson's *Robert Bridges, George Moore, Bernard Shaw and Printing* [1538]).

Our aim in this chapter is not to replace or compete with any of the excellent résumés by specialists like Winship [1573-74], Peddie [1553-56], Morison and Jackson [1543-46], and others, nor can we undertake to fill the need for a complete, detailed, and thoroughly documented and illustrated treatment of the subject. What we rather hope to do is to stimulate the student to supplement these works by the study of the classics in his special field as books, whether their printing be good or bad; for the monuments of bad printing have received even less than their due of interest, and even the good printing involves more than can well be seen in facsimile or described in text unless the books themselves are also in hand. Updike [1571], which is the best we have on the subject, is wisely limited to "printing types." Format, quality of paper, "layout" (which play no inconsiderable part in artistic printing), and even the "color value" of the type can be correctly judged only when seen in the original and on the actual paper used in its printing.

THE INVENTION AND SPREAD OF PRINTING

In speaking of the invention of printing, one must constantly keep in mind that it was really a development, not an accidental discovery nor the result of any cause or group of causes localized in any one place or period. The practice of printing with a die or stamp is as old as the Babylonian seal-cylinders, and is evidenced in ancient and mediæval seals, coins, brick and pottery marks, etc. Even in manuscripts there is some evidence that large initials were sometimes inserted with a stamp instead of "illumined" by hand. The press itself had as its prototype the old screw-press used for a variety of purposes in the Middle Ages (in binding MS. books, pressing paper, making cider, etc.).

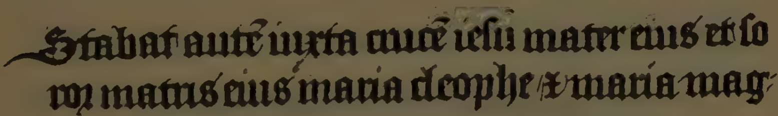
The origin of the various printed characters themselves is obvious, without further comment, if we place side by side an example of the gothic letter of the Gutenberg Bible:



Iacob aūt genuit iudā et fratres eiꝰ:
iudas aūt genuit phares et zara de

FIG. 73. GOTHIC TYPE, 15TH CENTURY.
Gutenberg Bible.

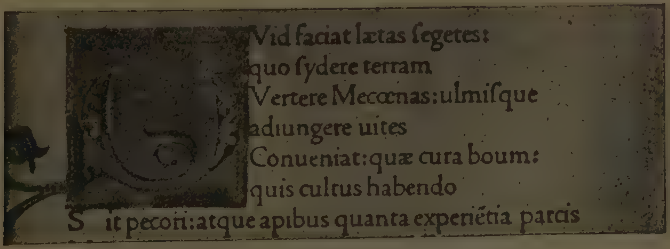
and an example of the church gothic minuscule writing:



Stabat autē iuxta crucē iesu mater eius et so
ror matris eius maria cleophe ⁊ maria mag

FIG. 74. "CHURCH GOTHIC" WRITING, 15TH CENTURY.
Bible.
Antwerp, Plantin-Moretus Museum.

An example of Jenson's roman type:



Vid faciat lætas ſegetes:
quo ſydere terram
Vertere Mecœnas:ulmiſque
adiungere uites
Conueniat:quæ cura boum:
quis cultus habendo
Sit pecori:atque apibus quanta experiētia parcis

FIG. 75. ROMAN TYPE, 15TH CENTURY.
Vergil, "*Georgics*." Jenson, 1475.

and an example of the literary humanistic minuscule:

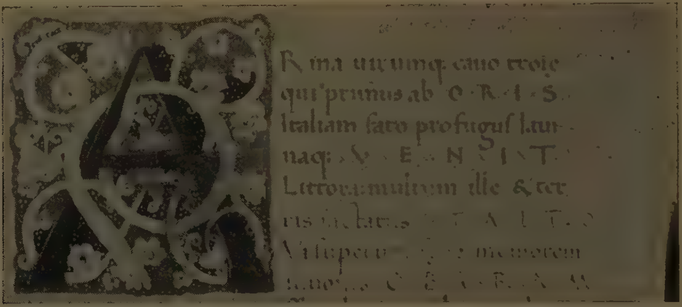
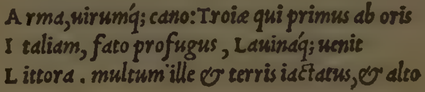


FIG. 76. HUMANISTIC MINUSCULE WRITING, 15TH CENTURY.
Vergil, "*Æneid*."
Princeton University.

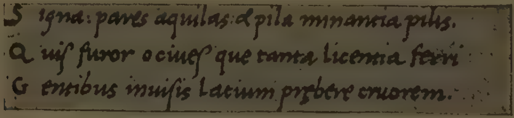
An example of Aldus's italics:



A rma, uirumq́; cano: Troiæ qui primus ab oris
I taliam, fato profugus, Lauinaq́; uenit
L ittora. multum ille & terris iactatus, & alto

FIG. 77. ITALIC TYPE.
Vergil, "*Æneid*." Aldus, 1501.

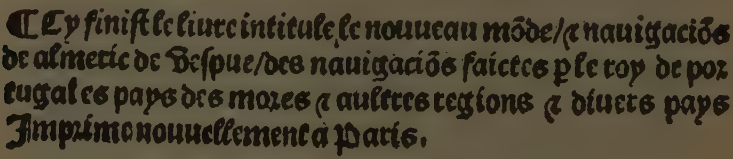
and an example of the humanistic cursive hand:



S igna: pares aquilas: & pila minantia pilis.
Q uis furor o ciues que tanta licentia ferri
G entibus inuisis Latium prebere cruorem.

FIG. 78. HUMANISTIC CURSIVE, 15TH CENTURY.
Lucan, "*De bello civili*."
Vatican Library.

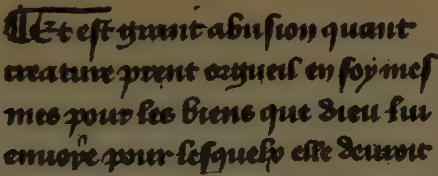
An example of the "lettre bâtarde" type:



¶ Cy finist le liure intitule le nouueau mõde/ ꝛ nauigaciõs
de almeric de Vespuce/ des nauigaciõs faictes p le roy de poꝛ
tugal es pays des moꝛes ꝛ aultres regions ꝛ diuers pays
Jmpꝛime nouuellement a Paris.

FIG. 79. FRENCH "LETTRE BÂTARDE."
Amerigo Vespucci, "*Le nouveau monde*."
Paris, early 16th century.

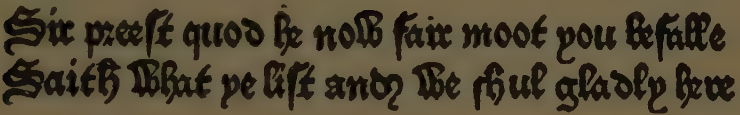
with a French gothic cursive:



Ceſt grant abuſion quant
creature prent orgueil en ſoy meſ
mes pour les biens que dieu lui
envoye pour leſquelz elle deuroit

Fig. 80. FRENCH GOTHIC CURSIVE, 15TH CENTURY.
Le Grant, "*Sophiloge de sapience.*"
Princeton University.

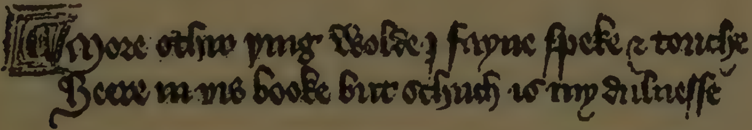
Caxton's English type:



Sir preeſt quod he now fair moot you befalle
Saith what ye liſt and we ſhul gladly here

Fig. 81. ENGLISH "BLACK LETTER" TYPE, 15TH CENTURY.
Caxton Chaucer.

and the contemporary gothic minuscule of English vernacular MSS.:



Moore othir þing wolde I fayne ſpeke & touche
Heere in þis booke but ſwich is my dulneſſe

Fig. 82. ENGLISH GOTHIC MINUSCULE, 15TH CENTURY.
Occleve, "*De regimine principum.*"
British Museum.

This is but a rough and general classification of early types. Just as each school of writing had its local peculiarities, so the printers varied their fonts, probably with reference to the styles of writing in the different places where they worked, or in the different MSS. which came to their hands. Blades classified Caxton's fonts under eight different numbers, and other bibliographers have worked out other minute type-classifications. It was a hundred years after the invention of printing before types came to be designed as types rather than as copies of MS. letters (cf. Updike's remarks on Claude Garamond, the first and perhaps greatest of the profession of type-founders in France).

The student should miss no opportunity to observe these many different early types from original fifteenth-century books, many of which are now available in America and may be located through the Bibliographical Society of America's *Census* [1515], and catalogues of more recent library collections like that of the Newberry Library, Chicago [1548.1]. Nearly a hundred incunabula have been completely reproduced in facsimile (cf. Crous [1526]), as have many rare books of later centuries. Collected facsimiles like Morison's [1543] are too expensive to be made available in every library; but De Vinne's *Practice of Typography* [1526.2] and Updike's *Printing Types* [1571] include many facsimiles and should be in every library of any pretensions; and facsimiles are a very valuable feature of the trade catalogues issued from time to time by such firms as Anderson, the American Art Galleries, Maggs, Quaritch, Sotheby, Baer, Rosenthal, Hoepli, Olschki, Gilhofer, and a number of others.

In the early stages of printing, two distinct processes must always be kept in mind. The printing may be done from an inked surface formed by cutting on a wooden block the lines of the original design in reverse, and then cutting away the background so that the raised design is left as the printing surface ("xylography"). This was the method used for making the early playing-cards, "image-prints" and "block-books," and for the woodcut blocks used in illustrating early books.

In the second method, individual characters or designs were cut or cast on separate blocks of uniform height. These were then combined into words, sentences, or, as in the case of ornaments and borders, into more elaborate designs. When these were fastened together or locked up into a mass, they formed the surface from which the page was printed. This is typography, that is, printing from movable types, as contrasted with xylography.

Carter [1522] has assembled the evidence in favor of the Chinese origin of paper and of block-printing. Paper came first to the Arabs and Persians from China, thence to the Moorish possessions in North Africa and from thence to Spain in the period of Moorish dominion. He instances the points of contact, during many centuries, between China and Europe, and thinks it very probable that block-printing in Europe is in large part a direct result of the earlier Chinese method. In view of the small attention paid to typography in China he considers it only a bare possibility that Europe is also dependent on China for this.

Just when either block-printing or typography began in Europe is very uncertain. There are indications that playing-cards were printed from engraved blocks of wood, in Germany and Italy, early in the fifteenth century. Just as educators now strive to harness the "movie" by the production of "educational films," so the moralists and the clergy attempted to give an ethical trend to card-playing by putting on the faces of the cards religious and scientific pictures. They succeeded no better than "Old Maid" and "Authors" have succeeded in displacing poker or bridge-whist. The earliest definitely known image-print is a print of St. Christopher, with the date 1423 (now in the John Rylands Library).

From these single prints probably developed the block-book, printed wholly from engraved blocks of wood. Each page (or sometimes double page) was printed from a single block, and consisted of a picture, sometimes accompanied by a small portion of text. It is estimated that about 100 of these were produced, of dates ranging from 1410 or 1428 (both conjectural dates) to 1510 or after. The best-known of the earlier ones are religious works like the *Ars moriendi* and the *Apocalypse* (probably both German); the *Biblia pauperum* and the *Canticum canticorum* (which are probably Dutch); and text-books like the Latin grammar of Donatus. Best known of all is the *Speculum humanæ salvationis* (four known editions, probably printed at Utrecht about 1470). It is remarkable for being printed partly from blocks (for the pictures) and partly from movable type (for the text). Block-books, like playing-cards, were primarily intended for the general use of the populace. The magnificent illuminated manuscripts, missals, and Books of Hours which the nobility possessed (often without much visible reformatory effect) were beyond the reach of the poor man, who might be able to possess a block-book. Like other books of popular appeal most of them have disappeared, though the few originals still extant are fairly accessible in well-executed facsimiles. A current English bookseller's catalogue lists a single leaf from a copy of the so-called third edition of the *Speculum humanæ salvationis* at 85 pounds.

The time and place of the first European printing from movable types and the name of the printer or inventor are still in doubt. The consensus of competent opinion is in favor of John Gutenberg. The first dated specimen attributed to him is an indulgence granted by Nicholas V to contributors to a war of the King of Cyprus against the Turks ("Given at Mainz, *anno domini* 1454, on the last day of December"). The earliest extant complete book printed at Mainz was the edition of the Vulgate known as the 42-line Bible from the number of lines to a page of text (cf. the "36-line Bible," printed at Bamberg). A copy of the 42-line Bible in the Bibliothèque Nationale (also called the Mazarin Bible, from its former owner, Cardinal Mazarin) bears a notice from the scribe who illuminated it, that his work was finished in August, 1456. How long before this the book was first printed is not known, but probably between 1453 and 1456. It may have been begun as early as 1450, the date mentioned in the *Cologne Chronicle* of 1499.

This *Cologne Chronicle* is also evidence for a rival to Gutenberg's claim as the inventor of printing—"the first prefiguration was found in Holland in the *Donatuses*, which were printed there before that time" (1450). Another bit of evidence is the pleasant story told by Hadrianus Junius (Adrian de Jonghe) in his *Batavia* (1588), that "Laurentius Joannes, surnamed Æditus or Custos" amused his great-grandchildren by cutting some letters out of beech bark and then printing with them (cf. Hessels in *Encyclopædia Britannica*, s. v. "Typography"). The most substantial evidence for Holland and Coster (= Custos?) is the "Costeriana"—"it is an important bibliographical fact that forty-seven different books, or fragments of books, exist, printed with eight different founts of type, all Dutch in origin, all without any name, date, or place, nearly all discovered in the bindings of fifteenth-century manuscript or printed books. . . . To make them later than, or even contemporaneous with the earliest *dated* Dutch books seems impossible . . . but place them about 1450 and onwards, and they take rank naturally" (Blades [1516.1]).

An Italian claim was advanced by Antonio Cambruzzi, in a seventeenth-century manuscript history of the city of Feltre. According to his story, Pamfilo Castaldi conducted a school which was attended by many foreign students—among them Johann Fust (the future partner and successor of Gutenberg), who was there as early as 1454. Castaldi's idea was the utilization, for the printing of whole books, of the glass used for printing initials in MSS., and through Fust the idea came to Gutenberg. A more romantic story connects Castaldi's supposed invention with specimens of Chinese printing brought to Italy by Marco Polo. The most tangible result of this legend is a statue of Castaldi erected in Feltre in 1868. The palpable incongruities of the story led to its rejection by practically every bibliographer of any prominence.

In 1890–91 l'Abbé Requin published three pamphlets with facsimiles of documents he had discovered in the archives of Avignon, which showed that as early as 1444 Procopius Waldfoghel, a silversmith from Prague, was making certain implements "pertaining to the art of writing" (cf. Pansier [1551]). The very specific references to the materials seem to indicate movable types and rudimentary printing-implements. But our first known specimen of French printing is from Paris, in 1470. Duff [1527] thinks that Waldfoghel's may have been a process of stamping from cut or cast stamps (like those used by early bookbinders) rather than printing by means of type in a press.

Thus the idea of printing and practical experimentation could hardly have been peculiar to Germany. Any one familiar with the work of contemporary scribes could have hit upon the idea attributed to Castaldi; Marco Polo certainly knew about Chinese printing; and metal-workers, at Avignon and elsewhere, must have been competent to make and use metal type. Nevertheless, the small size of the type of the Mainz Indulgence is the first evidence of the use of metal matrices and hand-moulds for casting type. Recent detailed studies (e. g. Zedler[1576-77]; Winship[1574]) tend to limit Gutenberg's invention to these mechanisms (though he may have used sand moulds at first); they are a *sine qua non* of practical typography and still entitle Mainz to its claim as the birthplace of typography.

It was this hand-mould which made possible the rapid spread of printing (cf. Winship[1574]). The spread of printing was also dependent on special political, social, and economic conditions. Multiplication of books depended on an increase of readers. Printers could not continue to print unless they could sell their books. Books could not be sold in large quantities until a large number of people had means of buying them. The thirteenth and fourteenth centuries were a period of rapid development in individual well-being. Trade had sprung up in the wake of the crusades and the later journeys of traders by land and sea. Art and literature flourished. Religion was becoming a matter of individual as well as of church concern. The beginnings of the Reformation and the Counter-Reformation, as well as of the Renaissance, can clearly be traced in the great wealth of manuscript treatises, personal narratives, and chronicles surviving from those two centuries. Economic machinery, such as the town was beginning to supply, was necessary for even the partial business stability essential for a printing-establishment.

PRINTING IN THE FIFTEENTH CENTURY

Associated with Gutenberg were Johann Fust and Peter Schoeffer. In 1455 Fust took possession by legal means of the business and associated Peter Schoeffer with him. It was they who marketed the Gutenberg Bible (De Vinne[1526.3]). Gutenberg seems to have kept on by himself for some years more; and is thought to have printed (1460) the *Catholicon* of John Balbus (an advanced Latin grammar and dictionary). Fust and Schoeffer's most famous book is the *Psalter* published in 1457—the first book with a printed date and the first example of printing in two colors. Schoeffer, who succeeded to the business, printed the first dated Bible (1462) and, in 1469, issued a trade list of twenty-one titles which he had for sale.

When Gutenberg and Fust began printing in Mainz, the city still held first place in the Hanseatic league. Nevertheless, it was torn by civil strife; two rival claimants to the archbishopric made war on each other. On the night of October 27, 1462, the forces of Adolph of Nassau, whose claims were supported by Pope Pius II, gained possession of the town; and a general sack of the city followed. Fust was among the victims. The printing industry was, for the time, destroyed. The printers, unable to get employment, were forced to scatter. Some, like Ulrich Zell, who is reported to have gone to Cologne in 1462, went to other German cities. Sweynheym and Pannartz, who became Italy's earliest printers, are also reputed to have been fugitives from Mainz. It is not easy to trace the exact results of the sack of Mainz on the dispersal of printing. There are many rather long intervals between 1462 and the founding of presses in the many other towns to which it is generally supposed the fugitives from Mainz went, which cannot satisfactorily be explained, even when the assumption is granted that getting the necessary capital, assembling the type and the press, and getting the business started would require from two to three years.

It is probable that there were presses in Bamberg by 1458 (Albrecht Pfister and Gutenberg himself) and in Strassburg by 1460. Johann Mentel's Bible (before 1468) showed a trend in type away from the gothic to simple roman characteristics. Adolf Rusch, long known only as the "R" printer (from his peculiar initial *R*), used, in the *Rationale* of Durandus (1464), the first roman type in German printing. Albrecht Pfister of Bamberg (1461 ff.), used woodcut illustrations in seven of the nine books attributed certainly to him—the first attempt to combine illustrations and any considerable body of text. More than twenty master printers were at work in Cologne before the end of the fifteenth century, of whom Ulrich Zell was the most prolific. Arnold Ter Hoernen was one of the earliest printers to use (about 1470) title-pages, head-lines, and leaves numbered in the margin with arabic figures. The Cologne presses adhered closely to the "round gothic" styles of Gutenberg and Schoeffer. The products of the Cologne presses were more varied in content than those of Mainz (which were chiefly religious).

At Augsburg, Gunther Zainer, of Reutlingen, printed in 1471 a single-sheet calendar in Latin for the year 1472, in a roman character, which he is said to have brought from Italy. Anton Sorg printed an illustrated Bible (1477) and, in 1483, a description of the Council of Constance with nearly a thousand engravings. The profusion with which he, Zainer, Johann Baemler, and Johann Schüssler used illustrations alarmed the guild of block-printers of Augsburg, who secured a city ordinance forbidding the use of woodcuts. When this proved a boomerang, they supported a measure by which printers were permitted to use as many woodcuts as they pleased, provided they would use only those made by engravers in good standing in the block-printers' guild. It is a temptation to draw an analogy between this and some modern industrial policies.

In Nuremberg, Johann Sensenschmid and Heinrich Kefer (1470), were followed (in 1472) by Frederic Kreusner and Anton Koberger. The latter was perhaps the most important printer of the fifteenth century. He marks the transition from the "incunabulum" period in Germany in that he became a publisher as well. He is said to have operated as many as twenty presses in Nuremberg, letting contracts to other printers and maintaining branch printing-shops in Basle and Lyons. About 1480 he issued a catalogue of 22 books he had for sale. Perhaps his best-known publication is the *Nuremberg Chronicle* (1493). This was an encyclopædic summary of the world's history and geography, compiled by Hartmann Schedel. It was illustrated with a map of the world as it was known at that time, and with more than 1,800 woodcut portraits and pictures of places, by Michael Wohlgemuth, by Wilhelm Pleydenwurff, teacher of Dürer, and perhaps by Dürer too. The same cut was used unblushingly several times for objects or events differing greatly in character and widely separated in time and space. It is a little disconcerting to find 44 portraits of kings serving for 270 different monarchs, and 28 stock cuts of popes masquerading for 326 different pontiffs; but historical inaccuracies in illustration probably interfered as little with Schedel's popularity in the fifteenth century as with Van Loon's in the twentieth.

Basle was the first Swiss printing-centre. Among the notable group of printers who reached their greatest fame in the sixteenth century, Johann Froben deserves particular mention as printer and friend of Erasmus. He issued (1491) the first Bible printed in small format.

Most of the master printers of Mainz who were driven to foreign countries went to Italy. Here the Renaissance had prepared the field for any process which would satisfactorily multiply good books, and books, both popular and learned, on other subjects than law and theology, in which the early German printers specialized.

The first Italian press was established in the Benedictine monastery of Subiaco, near Rome, by Conrad Sweynheym and Arnold Pannartz. Inasmuch as the roman hand had been revived by the humanists, the two printers used a font (said by some to have been cut by Nicolas Jenson) which was at least an approach to roman ("semi-roman"), although some gothic characteristics were retained. They moved to Rome in 1467, where they printed many classics in a more distinctly roman type. Unfortunately they overstocked their market, and, despite an appeal to the Pope, were forced to contract their business. In spite of this failure to secure a market, many other printers settled in Rome before 1500.

Venice rapidly took the lead in the number of presses, in number and variety of publications, and in the high average of type design and presswork (cf. Brown[1520]). There were about 150 printing-houses in Venice before 1500. John of Speier's ("de Spira") Cicero and Pliny (1469) show a roman type which is still more modern in appearance. The next year (1470) Nicolas Jenson produced the famous roman type which has been the inspiration of most of the better roman faces down to the present. Aldus Manutius, the most famous of them all, began printing in 1494. He used several fonts of roman type and designed the Greek type which is the basis of most later printing of Greek. His famous italic type appeared first in 1501. So rapid was the spread of printing throughout Italy that practically every city of importance boasted its press. There was one in the vicinity of every university of note.

Aside from the "Costeriana," the first printing in the Netherlands was by Nicholas Ketelaer and Gerard Leempt at Utrecht, and Thierry Martens and John of Westphalia at Louvain. Martens is supposed to have learned to print in Venice. Presses were set up in many other places in the Netherlands before 1500. Louvain, Antwerp, and Deventer (where Paffroed and J. de Breda produced more than 500 books, or about a quarter of all those issued in the Netherlands during the fifteenth century) were numerically most productive. Bruges is especially noteworthy to English-speaking people because it was here that Colard Mansion and William Caxton, in 1471, produced the first printed book in English. This was Caxton's translation of Raoul le Fevre's *Recueil des histoires de Troyes.* Many writers attribute the absence of German names from the list of Netherlands printers to the existence already of rudimentary native developments in printing.

The type of the incunabula of the Netherlands was mainly a crude gothic, though John of Westphalia used an excellent roman font. The early books of the Netherlands included a large proportion of schoolbooks, service-books, and other books of a popular character. Their format was, accordingly, generally smaller than the contemporary German books and anticipated the general decrease in book sizes which characterized the sixteenth century.

The first book printed in France is dated 1470. Printing was known earlier than this, for Fust and Schoeffer visited Paris, the former in 1462 and 1466 and the latter two years later, in an attempt to sell their printed books. But the conservatism of the faculty of the University of Paris and the business instincts of the great number of professional scribes and copyists dependent on university patronage apparently delayed the introduction of the new art. In 1469 three German printers from Basle (Martin Crantz, Ulrich Gering, and Michael Friburger) were employed by Johann Heynlin and Guillaume Fichet, respectively rector and librarian of the Sorbonne. This was the first "university press." The tastes of its founders, not unlike those of more modern university officials, ran "not towards transcendent theology, but rather towards the literature of the ancients and contemporary rhetorical works" (Bouchot [1518]). Some of these were university text-books; some were presentation copies for personal friends of the founders of the press. One of the issues was devoted to theoretical plans for world betterment—Cardinal Bessarion's *Orations*, advocating a sort of League of Christian Nations against the spread of Mohammedan power. (Winship [1573] considers this the most interesting book from the Sorbonne press.) After Fichet and Heynlin left the Sorbonne, the three printers they had employed set up shop outside the university.

Of the many other Parisian printers, Pasquier Bonhomme is noteworthy for his production of the first book printed in the French language, the *Croniques de France* (1477), and in the characteristic French type, "lettre bâtarde," based on a French gothic cursive style of writing (cf. Updike [1571]). This set the fashion for books in the vernacular. Romances, chronicles, grammars, and private service-books came to the front. The Books of Hours produced by Antoine Vérard, Philippe Pigouchet, and Simon Vostre were so beautifully and harmoniously decorated as to be worthy successors to the illuminated MS. *Horæ.* Classics were rather neglected until the end of the century.

By 1490 practically every important French city had one or more printing-houses. The chief centres of the trade, outside of Paris, were Lyons and Rouen. Lyons was an important commercial centre and the seat of international fairs. This led to a large output of poetry, chronicles, romances, etc. Even foreign types were imported and used, and, later, Aldine Press books were forged without scruple. Rouen was a centre for both French and English trade. Missals and service-books were exported to England. Le Talleur printed law-books for Richard Pynson and may have taught him printing. (Cf. Le Verdier [1540.1].)

The first English printer, William Caxton, was a prosperous merchant, and, about 1463, became governor of the English nation at Bruges—a position very similar to that of a modern consul. He was of the court circle of Margaret, Duchess of Burgundy; and it was at her direction that he translated the

Recueil of the Histories of Troy. This was printed (1475 or 1476) in a rather free gothic, supposedly based on the manuscript hand of his partner, Colard Mansion—another vernacular type derived from the cursive manuscripts. Caxton returned to England in 1476 and set up a printing-shop in Westminster. The first book printed here with a certain date was the *Dictes or Sayenges of the Philosophres,* finished in November, 1477. This may have been preceded by several pamphlets of undetermined date, now in the University of Cambridge Library. Caxton printed (until the time of his death in 1491) exactly 100 books (cf. DeRicci [1424]). Several of these are known only from fragments pasted in old bindings. It is very probable that other products of his press may have met the same fate of destruction.

As a printer Caxton was only moderately skilful, although his "type 3" was the basis of "Old English" black letter, which persisted so long and is still used for special work in substantially the same form as Caxton used it. His chief glory lies in his work as editor and translator and in preserving so much early English literature of merit (cf. Aurner [1514.4]). Among these are Chaucer's *Canterbury Tales,* Gower's *Confessio amantis, Reynard the Fox, Knight of the Tower, Æsop's Fables,* the *Golden Legend,* and *Morte d'Arthur.* He is said to have died on the day he finished his translation of the Fathers (*Vitæ Patrum*).

Caxton was succeeded by Wynken de Worde, his assistant, who had probably accompanied him from Bruges. At first de Worde continued to use Caxton's types and to reissue Caxton's books. Much of his more important work belongs to the sixteenth century.

London printing started in 1480 with John Lettou. His work was so good that, according to Duff [1527], he forced Caxton to adopt smaller type and otherwise to improve his work. William de Machlinia, Richard Pynson, and Julian Notary are other noted London printers of the century. The last two continued into the next century. There was also a printing-shop in Oxford (probably in 1478) supposedly conducted by Theodoric Rood, of Cologne, and one at St. Albans. One of the chief characteristics of early English printing was the fact that it was nearly all in English, instead of in Latin or Greek.

Printing reached Spain in a rather well-developed state, in 1474 or 1475, at Valencia. The first printer was Lambert Palmart, a Fleming. By the end of the fifteenth century there were presses in twenty-four Spanish cities, the chief centres being Seville and Salamanca. Saragossa was noted for its Latin classics. Nearly all the early masters were German, and gothic was the preferred type, but both Haebler [1531] and Updike emphasize the strong Spanish national characteristics impressed upon printers, of whatever race, from the very beginning of their work in Spain. Type, illustrations, heraldic title-page devices, and ornaments were black and heavy, but vigorous and harmonious.

Three towns in Portugal (Leiria, Lisbon, and Braga) had fifteenth-century presses, and presses were established in Austria, Poland, and what was lately Montenegro.

There are few Scandinavian incunabula. The earliest was an edition of *De obsidione et bello rhodiano* of William Gerson, printed by Johann Snell at Odense in 1482. Stockholm, to which Snell removed and began to print in 1483, Schleswig (1486), Copenhagen (1490), and Wadsten were the other centres. The output was not large.

The total output of books in the fifteenth century was surprisingly large. Hain's *Repertorium bibliographicum* [1533] listed 16,300 titles. The *Gesamtkatalog der Wiegendrucke* [1530] (now in progress) in its first volume lists half as many titles again as the corresponding portion of Hain. If this proportion continues, we may expect a total of nearly 30,000 recorded titles to the credit of the fifteenth century. There is a surprising number of minor works of a secular and a more or less popular character.

In their contents, fifteenth-century books represent, first of all, the gathering up and transmission in more permanent form of the MS. works of the Middle Ages and of antiquity. Winship [1573], Garnett [14], and, in much more detail, Steele [1569] include interesting accounts of the character and vogue of fifteenth-century literature, although the full and proportionate treatment of the subject must wait on the completion of the *Gesamtkatalog.* Hain and Copinger [1533] list over 300 editions of the

Bible, the Psalter, etc., in Latin, and from one to a dozen in each of the vernacular languages; liturgical books ("Hours," Breviaries, Hymnals, etc.) were still more numerous—Steele's partial summary (based on Proctor [1519]) makes a total of 358 editions. Patristic literature (especially Augustine, Jerome, Chrysostom, and, in Italy, Lactantius) was equally popular and made up, according to Steele's estimate, about five per cent of the total book production. The Scholastic philosophers formed about one and one-half per cent, with Peter Lombard, "Master of Sentences," and Duns Scotus leading in popularity, but also with editions of St. Thomas Aquinas, St. Bonaventure, Albertus Magnus, etc. Doctrinal and devotional works are much more numerous. There were some 70 editions of the *Imitatio Christi*, 45 of Durandus's *Rationale divinorum officiorum;* Nicholas de Lyra's *Glossa magna* is the most famous Bible commentary; and there was a great vogue of popular moral treatises (like the *Ars moriendi*), of Saints' lives (like Jacobus de Varagine's *Golden Legend*, of which Proctor lists 70 editions), of religious plays ("Rappresentazioni"), of moralized stories, dialogues, fables, etc. (like the *Gesta Romanorum*, *Æsopus moralisatus*, Jacobus de Cessolis on the game of chess, translated by Caxton, etc.). Altogether, religious books formed nearly half the output of the fifteenth-century presses.

Canon and civil law are estimated by Steele at about ten per cent of the total output of books, including many editions of the Papal Decretals, Justinian's works of Roman law, and commentaries and text-books, like those of the most prolific Bartolus of Saxoferrato.

History was popular, in the mediæval chronicle style. Geography is represented by many editions of Ptolemy and of Strabo, and by late mediæval guides and travels like the *Mirabilia Romæ* (50 editions), Mandeville, Marco Polo, etc.

Classics like Cicero, Vergil, Ovid, Æsop, Seneca, Horace, Juvenal, Persius, Lucan, Terence stood in about this order of popularity, Cicero heading the list with nearly 200 publications. About three-fourths of these were printed in Italy, as were practically all the Greek authors (Aristophanes, Aristotle, Æsop, Homer, Galen, Dioscorides, Theophrastus, Theocritus, Lucian, the Anthology, etc.). Of the Greek tragedians, Euripides alone appears. Steele estimates the number of editions of the classics at 1,269.

Mediæval literature is estimated at about ten per cent of the whole output, about half the titles being romances. Dante ran through 17 editions, Petrarch through 40. Among grammatical text-books, which numbered perhaps five per cent, there was none like that of Donatus, which reigned supreme in manuscript, block-book, and printed book alike for a thousand years after its author's lifetime (fourth century), and is said to be still in use in modern Italian adaptations.

The total of scientific and technical books is estimated at about six per cent. This includes encyclopædic works, like Pliny, who appeared in 20 editions, Isidore of Seville (11 editions), Vincent of Beauvais's four *Specula* (*Speculum historiale, naturale, doctrinale, morale*), and, most popular of all, the abbreviated encyclopædia by Bartholomæus (*De proprietatibus rerum*). Mathematics was represented chiefly by Boethius, Euclid, and a number of contemporary books on reckonings, accounts, etc. Astronomy, the most scientific of mediæval sciences, is represented by classical, Arabic, and mediæval works —John of Halifax or Holywood ("Sacrobosco") wrote a "really useful and well constructed elementary text-book," which ran through more than 37 editions (Steele). Theoretical physics was studied in Aristotle, or in Aristotelian commentaries by Averroes, Avicenna, Albertus Magnus, and Thomas Aquinas, or by contemporary authors.

The classic works on the art of war (Vegetius, etc.) and on agriculture had a certain moderate vogue. The *Book of St. Albans* is more famous for its press than as a book on hunting.

Medicine claimed perhaps a quarter the whole output of scientific and technical books. Standard authors for the time were Avicenna, Celsus, Mesue, Serapion, Gordon, Dioscorides, and Abano, while the great popular work was the *Regimen salernitanum* (Steele). The early herbals occupy a place in the history of botany, of agriculture, and of medicine; lapidaries have a certain interest for geologists; but, in general, like bestiaries and books on chiromancy, alchemy, astrology, etc., they are rather to be classed with the occult sciences.

Of works composed as well as printed in the fifteenth century, only the *Imitatio Christi* continues in popularity. But many other works of great contemporary or historical importance might be enumerated, e. g.: in religious literature, the Savonarola tracts, sermons (e. g., Proctor lists 114 by Robert Caraccioli), etc.; in history, the *Nuremberg Chronicle*, Rolewinck's *Fasciculus temporum*, Brandt's *Narrenschiff*, etc.; in geography and travel, the incunabula concerned with Columbus, etc.; in law, which claims perhaps twenty-five per cent of the output of writers in the late fifteenth century, the *Bulla aurea*, the French custumnals, Littleton's famous treatise on "tenures," etc.; among works of literature not yet entirely forgotten, Æneas Sylvius's (Pope Pius II) love-story of Euryalus and Lucretia, the disreputable stories of Poggio and Masuccio, etc. (Steele records a total of 3,551 books in the *belles-lettres* class); among scientific and encyclopædic works, Reisch's *Margarita philosophica*, Cecco d'Ascoli's encyclopædic poem *L'acerba*, etc.*

By the end of the fifteenth century the modern book was assuming its shape and its present features of title-page, register of contents, pagination or foliation, imprint; illustrations and printers' marks were known, though not generally adopted as yet. While it is a fallacy to consider all fifteenth-century books masterpieces, the best of them reached a level of workmanship not yet surpassed. In the roman type of Jenson and Aldus they reached also a very high degree of legibility.

THE SIXTEENTH CENTURY

The history of sixteenth-century printing has never been satisfactorily written. Some countries (e. g., Spain and Italy) have been included in the current series *Periods of Typography* [1557], but otherwise the material is scattered through the older bibliographies, local studies, and periodical articles (cf. Childs [1401]). A census of sixteenth-century books, conducted by the Bibliographical Society of America, is in its preliminary stages.

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* All these remarks and statistics (taken chiefly from Steele [1569]) regarding the general and national tastes in books during the fifteenth century are at present merely suggestive and subject to wholesale revision—the *Gesamtkatalog* already shows, for instance, a greater proportion of contemporary vernacular literature than previous bibliographies had recorded.

The decline of printing from the beautiful models of fifteenth-century types is variously traced to various events and tendencies, both within the trade and without. The development of the publisher, as distinct from the printer, and of mass production corresponded to an increasing demand for more books, cheaper books, books of smaller, more convenient size, and books of popular content and ephemeral use. The needs and aims were practical rather than artistic. We have noted the publishing activity of Koberger in the fifteenth century. The practical interests of scholars are evidenced in the work of Aldus and of the French scholar-printers, the Estiennes, Badius, Vascosan, etc., and in much of the work of Plantin in Holland; while de Worde, in England, may be taken as a concrete example of the catering to popular rather than literary demand, though this has been a tendency more or less common to all countries from the sixteenth century to date. The general decline, however, only becomes evident after the middle of the sixteenth century.

The spread of printing continued. "During the years 1501–20 no fewer than twenty towns in Germany set up presses for the first time. In Italy, during the whole century, no fewer than 100 towns set up presses" (Peddie [1556]). Also, a few presses were established outside of Europe—notably the first American press, in Mexico (1539).

On the mechanical side, "the press remained with its wooden screw on the spindle and without tympan or frisket until 1550, when Danner, a printer of Nuremberg, introduced the metal screw and added the tympan and frisket. Previously the paper must have been laid directly on the type and covered with something like a blanket in order to get an even impression. In 1620 Blaeu, of Amsterdam, introduced the great improvement of a spring which returned the platen after impression and reduced the work of the pressman by one-half. But for these improvements the press at the end of the eighteenth century was the press of the fifteenth century" (Peddie [1553]).

Before the end of the fifteenth century the primacy of printing had passed from Germany to Italy; in the course of the sixteenth century it passed from Italy to France, and from France to the Netherlands. German printers continued to use and develop the gothic pointed *lettre de forme* ("church gothic") and round *lettre de somme* ("text gothic"), with occasional use of italic and rather heavy roman types. The pointed gothic now known as "Fraktur" shows some of its elaborations in the stock example, the *Teuerdank*, a romantic poem celebrating the marriage of Maximilian I (1517), who acted as publisher in the sense that he paid the printer (Schoensperger), if he was not perhaps author as well (cf. facsimile in Updike [1571]).

The round gothic or "Schwabacher" and a cursive type may be illustrated by the *Kunstrich Buch* printed by Christoph Froschauer at Zurich, 1567 (cf. facsimile in Updike). With the death of Maximilian I (1519), royal patronage of fine printing diminished. Charles V, who succeeded Maximilian, had his time more than occupied with the growing troubles of the Reformation. The Bull of Leo X excommunicating Luther was promulgated June 15, 1520, and was answered by Luther in his *Adversus execrabilem Antichristi bullum*, early the following autumn. After the open breach with Rome the German presses became busy and, for the rest of the century, controversial books and pamphlets took the lead. For reasons of prudence their imprint is often lacking. For commercial reasons they were hurriedly and cheaply made and the whole century has been full of bibliographical puzzles. Whatever the printer may think of them, the Reformation tracts—"these small and partly mean-looking books," as a recent bookseller's catalogue calls them—are of the greatest historical value and of no little bibliographic interest. Proctor's *Index* [1519] (pt. II, 1501–20, section I, Germany) London, 1903, is still indispensable in this field. Broadsides, broadsheets, and pamphlets abounded. The serial newspaper definitely makes its appearance (1588). (Cf. Schottenloher [1147] and his bibliography.) Illustrations increase in quantity, in luridness, and in care-free disregard of artistic limits. With the national feeling aroused by the international religious disputes, it is natural that foreign influences in printing should be felt but slightly.

One of the most important centres of German printing was Basle, which was essentially German, although it became a member of the Swiss Federation in 1501. A free city of the Holy Roman Empire before this, the seat of a vigorous new university (founded 1460), and "the gateway by which the new humanistic studies of Italy came into Germany" (cf. Johnson [1557]), it had everything favorable for successful printing. Its two leading printers in the sixteenth century were Adam Petri, who began to print in 1509, and Johann Froben (Latinized as "Frobenius"), who printed from about 1491 to 1527. He printed Erasmus's edition of the New Testament in Greek with a Latin translation (1516) and many other works of Erasmus and his fellow humanists. According to Johnson, he started to print Lutheran tracts, but was diverted from it by Erasmus. This line of best-sellers of the day was left to Petri. Both Froben and Petri are noted for the woodcuts and decorations of their books. The best of these were by Urs Graf and the more famous Hans Holbein.

Roman rather early supplanted the gothic type—probably owing to humanistic influences and to Froben's work. Between 1522 and 1525 a Protestant censorship of books was established. Churches were sacked, the plague attacked the city, Holbein and Erasmus left, and the town lost its pre-eminence to France, though it still issued great numbers of books.

During the early years of the sixteenth century, Italy continued the traditions of her great printers of the last years of the preceding century. Aldus, whose first efforts were chiefly toward preserving and popularizing the Greek classics, collected a notable staff of Greek scholars to supervise the Greek works going through his press, and founded the Aldine Academy in 1500. He had adopted a cursive model for his Greek types, to make his pages more compact and his books cheaper in consequence. To meet a similar need for Latin classics in smaller volumes, he designed his italic type, based on a hand used by the Papal secretaries at Rome. The legend that it was copied from the handwriting of Petrarch is pleasant and persistent, even if apparently untrue (cf. Updike [1571]). The first book in this type, an edition of Vergil, appeared in 1501. Horace, Juvenal, Persius, Martial, and Petrarch followed. These were small octavos, about 6 by 4 inches, in striking contrast to his earlier folios. Their popular purpose is shown in the dedicatory letter of the Juvenal (1501): "We have printed, and are now publishing, the Satires of Juvenal and Persius in a very small format, so that they may be more conveniently held in the hand and learned by heart (not to speak of being read) by every one" (Updike).

Among the later printers of note were the Giunta family, contemporaries and imitators of Aldus, and Lorenzo Torrentino (printer to Cosimo de' Medici). Both of these printed at Florence. In Venice, Giolito de' Ferrari and his son Gabriele, though little known to-day, were the most prolific Italian printers of the century. From 1539 to 1578 they printed about 850 books—Italian classics, contemporary romances, poems, plays, and other books of a popular type, Greek and Latin histories, and books of a devotional character. They had great influence on book illustration, especially in the use of title-pages with architectural designs and of decorated and illustrated initials. The varied character and quality of their books reflect the general condition in Italy. (Cf. Johnson [1557].)

In the latter half of the century the printers of Italy were rather closely regulated. The Council of Trent, the Inquisition, and the Counter-Reformation became active about 1550. In 1559 the first Roman *Index* of prohibited books appeared.

Under Louis XII, the French had successfully invaded northern Italy. Here they had come into direct contact with the Renaissance and Italian culture, including fine printing. Louis XII himself mildly contracted a taste for decorative bindings. His financial official at Milan, the famous bibliophile Jean Grolier, was a friend of Aldus and had an artistic interest in the interior as well as in the cover of the book. Under Francis I (successor of Louis XII) the influence of Italian art increased, and France became a centre of art and fine printing.

In 1499 Josse Bade of Asch (better known by his Latinized name, Jodocus Badius Ascensius) set up a press in Paris. In scholarship and editorial care he resembled Aldus. His press ("Praelium Ascensium") was primarily set up, like that of Aldus, in his own house, so that he could directly oversee its products. As the Aldine is the most famous family of Italian printers, so, in France, the Estiennes ("Stephani," in Latin) earned similar fame as both printers and scholars. The press was founded late in the fifteenth century by Henri Estienne, who was succeeded by his son Robert and by Simon de Colines (who married Henri's widow). Robert's scholarship found expression in compiling a Latin dictionary (*Thesaurus*, 1532) in preference to reprinting a less accurate compilation; in a polyglot Bible, in which his mild textual criticism aroused clerical opposition and eventually led him to leave Paris for Geneva; and, at Geneva, in a monumental Greek *Thesaurus* (1572), which was pirated in abridged and more salable form by a trusted employee. (Cf. Bouchot [1518].)

Colines and the Estiennes also showed artistic sense in using decorations and types designed by Geoffroy Tory and his pupil Claude Garamond. Tory (1480–1533) is probably the most highly rated of all French printers. Scholar, poet, painter, engraver, type-designer, spelling-reformer, printer, and mystic, he was "in short, a kind of divine jack-of-all-trades" (Updike). He was the greatest single influence, through his mastery of type-design, in bringing about the use of roman instead of gothic type in France. His borders, initials, and other page decorations are still the model and despair of printers.

In the sixteenth century, type-founding became a distinct art. Garamond, Granjon of Lyons, and the Le Bè family cast type not only for French printers but for Plantin of Antwerp. Garamond (died 1561) was the first and perhaps the greatest. His roman and italic types became very popular in Italy, England, Holland, and Germany. They greatly hastened the disuse of gothic in all but the last country. He improved the Aldine italics, most notably in the substitution of sloping for square capitals. In his roman type he was no longer reproducing a manuscript, as Jenson had done, but creating letters to be considered independently as types (Updike; but cf. new investigations of Garamond types by P. Beaujon in *Fleuron* 5). Recent types based on Garamond models are much in vogue in the United States at the present time.

Thomas's *Spanish 16th Century Printing* [1557] includes facsimiles showing the high character of much of the earlier Spanish work. Some 10,000 titles were issued from presses in 60 or more different towns, although there was no predominant centre of printing, owing to disturbed political conditions, the lack of a national capital until 1566, and difficulties of communication. Except in the case of private devotional works and schoolbooks, the more serious books were usually folios with double-column pages. Roman type, after a brief period of popularity, had pretty generally succumbed to the more congenial gothic. Decorations and illustrations were also usually heavy, in harmony with the type. After Madrid became the national capital (1566), it not only took from Alcalà its pre-eminence in printing but changed the prevailing type style from gothic to roman. Books became smaller. Decorations and illustrations had to change to maintain harmony in style. As in other countries, the book as a work of art declined.

It was from Seville that printing was first introduced into America, by Juan Cromburger, who printed the *Doctrina christiana en lengua mexicana e castellana*, Mexico City, 1539.

During the second half of the sixteenth century, Holland gained the supremacy in printing which France had previously possessed. The French clerics were seriously interfering with French scholarship and consequently with the scholarly printers. Italy had also begun to restrict the press, Spain had not developed industry enough for local needs, and Germany was more concerned with output than quality. In the first half of the century, fifteenth-century traditions persisted—heavy gothic type, thick squatty volumes, with coarse woodcuts, were common (cf. Nijhoff [1548.3])—but 1549 marks the advent of Christopher Plantin, of Tours, to Antwerp, which was already an international centre of trade and had a flourishing printing industry. Originally a worker in leather and a bookbinder, Plantin is said to have changed his trade because one arm was disabled in an attack by a band of roisterers. He rapidly built up the largest printing business in Europe. He excelled in workmanship (some of his fonts were imported from France) and in the variety and quality of his publications. From 1555 until his death in 1589 he was the greatest factor in Antwerp's literary and printing pre-eminence. He employed a staff of scholars (chief among them Justus Lipsius) to insure the scholarly value and accuracy of his products. His list included the Greek and Latin classics, patristic writings, law, history, and scientific treatises, besides books in Hebrew. His Polyglot Bible nearly threw him into bankruptcy, as this was one of the occasions when a promised grant from a royal treasury did not materialize. Philip II saved him by granting him a monopoly for printing the missals, service-books, and other devotional works authorized for use in the Spanish church. Plantin's specimen book of the types he used (1567) shows 41 fonts, including Hebrew, Greek, roman, italic, cursive, and gothic (cf. facsimile reprint, with an introduction by McMurtrie [1558]).

After Plantin's death in 1589, his son-in-law, Jean Moretus, took over the business. He and his successors concentrated on the religious books which were the "best-sellers" of the day. The business remained in the family until 1876, when Edward Moretus, the last printer of the line, sold the old printing-house ("Officina Plantiniana") to the city of Antwerp. It is now preserved as a museum and contains not only the documentary records of the house, but all kinds of printing equipment used throughout the entire life of the firm.

English printing in the early part of the sixteenth century was dominated by printers who were well under way before 1500. Wynken de Worde, Richard Pynson, and Julian Notary were the leaders. De Worde was a business man first and, unlike Caxton, only secondarily interested in the advancement of literature. The 700 books attributed to him between 1501 and 1535 range from reprints of Caxton's chronicles, romances, and devotional works to poetical satires and textbooks. Many are known only by fragments which lined old bindings .Most of them were illustrated. His edition of *Sir John Mandeville's Travels* (1499) had "a set of illustrations not less wonderful than the adventures they portray" (Plomer [1561]). The growing tide of the Reformation created a market for books with heretical tendencies, and de Worde was too good a business man to overlook the market. He printed an edition of Erasmus's *Colloquies;* in 1524 he was arraigned for printing and selling an alleged heretical work, the *Image of Love*—more than that, he admitted having sold sixty copies to the nuns of Syon Abbey (cf. Plomer). In his later years de Worde printed editions of the classics in smaller, handier format, and, in most cases, in italic or roman type. His best books are well done, but his work was often careless; his illustrations are profuse, but show little regard for taste or accuracy.

Pynson was a better printer than any of his contemporaries, and was the first English printer to use roman type (1509). For many years (1490–1528) he printed legal treatises, yearbooks, and statutes. In 1508 he succeeded William Faques as King's printer. Although his salary was only two pounds, the appointment resulted in a large, steady income from the governmental publications.

Among the many other printers of the century are Robert Copland; John Rastell (1475–1536); Thomas Berthelet (appointed King's printer in 1530), who was noted both as a printer of taste and a master of bookbinding; Robert Wyer, who between 1524 and 1534 printed many small books on medicine, astrology, and other popular subjects; Andrew Myllar, who started printing in Scotland in 1508; Richard Grafton, who printed the New Testament and the Great Bible of Coverdale in partnership with Edward Whitechurch; and John Day, the most noted printer of the second half of the century. There were also presses, mostly short-lived, at York, Oxford, Abingdon, Cambridge, Tavistock, St. Albans, Ipswich, Canterbury, Norwich. Several secret presses were conducted, by both Catholics and extreme Puritans, during the heated religious discussions of the last twenty or thirty years of the century (cf. Plomer [1561]). Among the most famous were the press of the Jesuit, Father Persons (or Parsons), and the Marprelate Press, from which the famous Marprelate Tracts were issued.

Among the famous issues from Day's press are Fox's *Book of Martyrs* (1536) (i. e., *Actes and Monumentes of These Latter and Perillous Dayes*); an *Anglo-Saxon Homily* (in the first font of Anglo-Saxon type) in 1566–67; the authorized version of Norton and Sackville's *Ferrex and Porrex* (1510); Roger Ascham's *Scholemaster* (1570); the works of William Tyndale (1573).

The presses of Scandinavia and the Slavic countries produced books of local interest, but, for the most part, of little apparent influence in the history either of literature or of printing. The issues from the Spanish-American presses were largely ecclesiastical in character. They may properly be considered Spanish in style and influence.

In addition to the few sixteenth-century books which we have mentioned as examples of the work of a few particularly famous printers, students should be interested in identifying the printers, typographic styles, etc., of many sixteenth-century classics. Apropos of the first printed English Bible (1525) in Tyndale's version, "You might almost say that Caxton and Tyndale between them fixed the main lines of modern English" (cf. H. G. Wood, in *Library Association Record*, n. s. v. 3 (1925), pp. 256–263). The sixteenth century was more truly an age of discovery than the fifteenth, and witnessed the publication of the Hakluyt voyages and of the Amerigo Vespucci tracts and many other "Americana." More's *Utopia* is a classic in both sociology and literature. Students of literature hardly need to be reminded of the first editions of Sidney and Spenser, Rabelais and Montaigne, Hans Sachs, Ariosto, Camoens, etc. Scientists should be interested in the first editions of Copernicus, Kepler, Vesalius, Agricola, Paracelsus, etc. Machiavelli is still a political byword [366]. The *Commentarii urbani* of Raphael Maffei "Volaterranus" is an encyclopædic work characteristic of the sixteenth century, in that geography and biography, which had been neglected in earlier periods, here occupy each nearly a third of the whole (cf. *Encyclopædia Britannica*, s. v. "Encyclopædia"). And, finally, our bibliographical students should be reminded again of Gesner's *Bibliotheca universalis* [1380] and of the fifteenth and sixteenth century bibliographies listed among his sources.

THE SEVENTEENTH CENTURY

This century is of great political and literary importance, but of general decadence in printing as an art. It is a period comparatively neglected by students of printing and only partially cultivated by historical students. Pamphlets, which were considerably used in the Reformation, became a common method of publicity and propaganda. Newspapers developed from a news-sheet of one or two pages devoted to a single event to the *Mess-Relationen* issued at the semi-annual book-fairs. These, like the *Annual Register*, summarized the leading events of the preceding half-year. They were usually crudely illustrated, and, from their contemporary character, they are often excellent source material. Although the term "Zeitung" (*newspaper*) frequently occurs in the title of the earlier German newspapers, the later periodicals more commonly are entitled "Historical relation," "True narration," "Concise account," or whatever the vernacular equivalent may be. Gradually these developed into the more frequent newspaper (cf. Schottenloher [1147]). Learned periodicals, too, had their beginnings, in the *Journal des scavans* (1665–), the *Acta eruditorum lipsiensium* (1682–1776), the *Giornale de' letterati* (1668–1769), etc.

Any attempt to include here even a representative list of learned and literary classics of the seventeenth to the twentieth centuries would be beyond our limits of space, and, perhaps, beyond the limits of the reader's patience; but, in addition to noting, in passing, general trends of politics and literature as they affected the history of printing, we should perhaps note a few seventeenth-century authors whose works typify new literary and scientific developments: the King James version of the Bible (1611); Hugo Grotius and international law; and in science we have "a century which began with a Galileo and ended with a Huygens and a Newton—and when to the names and works of Galileo and Huygens and Newton we add those of Kepler, Harvey, Torricelli, Halley, Descartes, Boyle, Hales, Boerhaave, Leeuwenhoek, and Malpighi, we have a brilliant company indeed" (Sedgwick and Tyler [780]). The most famous encyclopædia was Pierre Bayle's *Dictionnaire historique et critique* (1697). Bibliographers still find use for Draud's *Bibliotheca classica* (1625), etc.

Anonymous books, missing or fictitious imprints, and hasty workmanship characterize the printing of every country in periods of political or religious disturbance. As this condition existed somewhere nearly all the time in the seventeenth century, this period affords many interesting bibliographical puzzles to the historian and the literary student. The more pretentious seventeenth-century title-pages are characteristically burdened with copperplate engravings. Portraits in elaborate engraved frames may be seen in practically every memoir or volume of "Complete works." Printed titles were often overshadowed or completely displaced.

German printers flourished so far as output is concerned, though they could lay little claim to artistry. There was little important change in the type design. Gothic still reigned supreme, for ordinary use. Copperplate illustration became very elaborate and ponderous.

In Italy the same influences were at work. Books were overloaded with useless ornament. The small, handy volumes of Aldus and his successors were replaced by large, elaborate folios. Updike [1571] notes the harmony between this period of typographic exaggeration and the overgrown, overdecorated architecture of the period.

France shows the same general effects. The architecture of the Louis XIII and Louis XIV periods influenced general taste. The types were heavy, the illustrations and decoration overloaded and profuse. Whether, to the historian and literary student, they show harmony with the artful artlessness of the court nymphs and their satyric rather than satiric companions, and whether they give an effect similar to the highly artificial poetic rhythms and imagery of the time is another matter. Both Louis XIII and Louis XIV were patrons of printing. Cardinal Richelieu had a private press of his own. He was largely instrumental in Louis XIII's establishment (1640) of the Imprimerie Royale at the Louvre, with Sébastien Cramoisy as its first director. Under various changes of name, to correspond with changes in government, this press has survived to the present. Other French printers of prominence during this century were Antoine Vitrè, who printed the great "Paris Polyglot Bible" (edited by LeJay in 1645); Pierre Le Petit, printer of the first Dictionary of the French Academy (1643); and Sébastien Mabre-Cramoisy, grandson and successor of the first director of the Imprimerie Royale, and publisher of most of Bossuet's *Funeral Orations.*

The Elzevir family dominates seventeenth-century printing in the Netherlands as completely as Plantin did in the sixteenth. The first of the family, Louis Elzevir, began publishing at Leyden in 1580. His five sons continued the business at Utrecht, Leyden, and Amsterdam. Their fame rests chiefly on their little volumes of 32-mo size, still popularly known as "Elzevirs," although they published in other sizes—even folios. These handy volumes covered a great variety of subjects: Greek and Latin classics; romances such as John Barclay's *Argenis;* historical and geographical handbooks of European countries under the general title "Respublica" (a sort of early Baedeker); various editions of Cluver's *Geography;* historical works, etc.—even a cook-book. There is in all of them a family resemblance—in their inadequate margins, their engraved title-pages, and solid-looking pages of small, monotonous, but "sturdy" (Updike) and legible type. Their popularity was enormous from the time of their appearance till the present, when even collectors who ought to know better confuse their monetary value with that of Aldines or desirable incunabula. They were the cheap books of their day and they are still comparatively cheap and plentiful. Their texts were very fair and their workmanship better than in many corresponding issues of to-day. There is an extensive literature on the various products of the Elzevir press (cf. Copinger [1525]). Their works were extensively imitated and counterfeited.

Two other prominent Dutch firms of the period were J. Hondius and the Blaeus, of Amsterdam. Their excellent illustrated works and maps are often masterpieces of printing as well as documents of great historic value. Willem Janszoon Blaeu invented (1620) an improved type of printing-press which retained its vogue almost to the end of the eighteenth century. Many books in French, English, and other languages were printed in Holland during this period. This is especially true of controversial works by political or religious workers or by fugitives who fell under the censorship in their native countries.

In England, the gothic was retained in acts of Parliament and official proclamations and decrees, but was otherwise little used except for ornament or emphasis, as on title-pages or in captions. This century was the century of the Civil War, the Commonwealth, the Restoration, the reign of William and Mary, and the rise and decline of the Puritans. There was too much politics, church and civic, to permit much attention to fine typography. It is the century of Shakespeare quartos and folios, of *Paradise Lost*, and of the Restoration drama, but there were few wealthy patrons of printers and few printers artistically worthy of them. In this they were little to blame.

Regulation of printing by the Company of Stationers of London, which had begun in the time of John Day, continued and increased. Copyright extended not only to the ownership of a book but to permission to print it. Under these regulations Robert Barker printed the first King James version of the Bible, in 1611. Under Charles I, censorship of the press became severe. Several printers were imprisoned for issuing unlicensed books. Others were forbidden to continue their trade. The various decrees and their results are admirably summarized in Plomer [1559].

With the beginning of the Civil War in 1640, periodicals under the name of *Diurnal*, *Mercury*, *Intelligencer*, and the like became very prominent. Both king and parliament had their organs. These usually consisted of one or two folded sheets, each of four or eight pages, and gave the leading political and military news, sometimes appearing as often as every other week-day. Along with these came a flood of political pamphlets giving summaries of parliamentary or royal policies and actions, or airing the authors' views on current topics much in the manner of present-day writers to the London *Times* or to the contributors' column on the editorial pages of our own newspapers. Accounts of prodigies and the wildest kinds of prophecies also abounded. To prevent any relief and to make the checking of good literature still more certain, there was an enormous number of sermons and religious tracts on all conceivable subjects.

The workmanship was wretched. The types were used until battered and worn. Composition and presswork were both bad. Margins ran at random around the type until the binder cropped them off. Printing was done by men of less ability and capital than previously. The more scholarly books and those for the book-lover were imported, and relatively little but the cheaper job-work was left for native presses. A graphic account of the conditions of book-making is to be found in Joseph Moxon's *Mechanick Exercises* 1547. Among the few honorable exceptions are the following: William Dugard, publisher of the royalist works *Eikon basilike* and Salmasius's *Defensio regia*, as well as of some of Milton's political works; Richard Hodgkinson, who printed the first volumes of Dugdale's *Monasticum anglicanum* in 1655, and Thomas Newcombe, who did the third and last volume in 1673; Thomas Roycroft, who printed in six folio volumes the London Polyglot Bible of 1657, edited by Bishop Brian Walton, of Chester. This was probably the finest English book of the century, and Roycroft has a fair claim to being considered the best printer of his time. Some books notable for good workmanship as well as for their contents were printed at the Oxford University Press from types given to the university between 1667 and 1672 by Doctor John Fell (cf. Hart 1550.2).

In 1662 an act was passed limiting the number of printers in London to twenty, and permitting printing elsewhere only at Oxford and Cambridge Universities and the City of York. The plague in 1665 and the fire which followed it further demoralized the printing business, so that the records of individual printers are hard to trace. They are made more difficult by the practice of having in the imprint the name of the publisher only, without indication of the printer. Yet the amount of printed material of this period still extant is amazing (cf. the British Museum Catalogue of the Thomason collection 1051, and Gerould's *Sources of English History . . . 1603–1689* [129]).

American printing is represented first by some 237 sixteenth-century Mexican imprints (cf. Wagner [4]). Within the limits of the United States, printing began at Cambridge, Mass., late in 1638, when its first known product (a broadside), *The Oath of a Freeman,* appeared. Stephen Daye was the first printer (1638–45). Improbable tradition says he was a relative of the famous London printer, John Day. Among the best-known issues of the Cambridge Press were the *Bay Psalm Book* (1640) and John Eliot's *Holy Bible, Translated into the Indian Language* (1663). This latter was printed by Samuel Green and Marmaduke Johnson. The general character of the printing was very much like the contemporary English work. The composition and presswork were poor. The type was imported from England, though some of the fonts may have been Dutch. The subject-matter, too, was typically English. As in Mexico, the principal motive which prompted the establishment of a press was religious. Every public event, from election day to a public hanging, was celebrated by a sermon, and most of the historical references of the time are to be found in sermons or religious pamphlets. Laws, almanacs, and some reprints of English works about complete the list of New England imprints.

Hildeburn [1535] lists 71 items printed at Philadelphia before 1700. A religious controversy between George Keith and the Quakers occasioned many of the items. Almanacs, some political and religious books and pamphlets, and a few official proclamations practically complete the lists of the two printers, William Bradford and Reymer Jansen. Bradford also established a press in New York in 1693. The New York imprints are largely legal or legislative items, proclamations, almanacs, and a few religious items—much like Bradford's Philadelphia list.

Altogether, the first volume of Evans [1191] lists 902 books issued from English colonial presses up to 1700—most of them from Boston or Cambridge.

THE EIGHTEENTH CENTURY

Although the eighteenth century started off rather badly, improvements in printing over the seventeenth soon became apparent in several countries. The effects of the Thirty Years' War were largely effaced, and English affairs became more stable. None of the numerous wars of the century, until the catastrophe of the French Revolution, so completely upset the general welfare as the earlier wars had done. Popular prosperity and popular education increased, though the scale of living was still low. Newspapers, as well as books, became common. The reading public increased with increased leisure, and the desire for more tasteful printing made itself felt.

From its lowly position in the seventeenth century England now advanced to a position of leadership in printing. Most English types had been imported or copied from the Dutch, and this fashion did not cease until the time of William Caslon, who began his foundry about 1720. The Caslon firm is still in business, and their work has been of the first importance in the art. Caslon's types were improved from the Dutch, and are distinguished for the "variety of design" and the "delicacy" and precision of modelling; the whole mass is "harmonious" and "comfortable" (Updike[1571]). No founder before Caslon ever succeeded in repeating the same form on many sizes of type with such precision (De Vinne [1526.2]). The face of his type is far cleaner and clearer than that of any French or Dutch founder. He kept the rather angular serifs at the top of letters, but used the flat serif more freely at the base—a happy mixture of angular and round.

John Baskerville began with Caslon's forms, but developed them in the direction of lightness and delicacy, roundness and openness. The printing itself was beautifully done and the paper was pressed in hot copperplates. His italic type, on the other hand, was rather condensed but graceful—reminiscent of Baskerville's profession of writing-master. Contemporary opinion was, on the whole, not favorable. His types were eclectic; the lines were too fine, so that the whiteness of the page dazzled the eye; printers complained of the fragility of the type. But these complaints were due as much to the unskilfulness of the printers and the imperfections of their machinery as to anything else, and Baskerville had a great influence on later English, French, and Italian fonts.

Baskerville is deservedly famous as printer as well as type-founder. His Vergil, published in quarto in 1757, was followed by *Paradise Lost* and *Paradise Regained* (1758), and by editions of the *Prayer Book* (1760) and the Bible (1763). Both of these he issued as printer to the University of Cambridge. He also printed editions of Addison, Congreve, Juvenal, Persius, etc.

A compromise of style may be found in the types from Alexander Wilson's foundry in Glasgow (used by the Foulis Press). Wilson's type is more regular and mechanical, but lacks color, and, on the other hand, though delicate like Baskerville's, misses his brilliancy. By the end of the eighteenth century, Caslon was generally thought too stiff and Baskerville too delicate. Various individuals attempted changes; Joseph Jackson and, later, Vincent Figgins, who had worked with Caslon, developed types with more curve and less angle. Imitations of Baskerville and his Italian counterpart, Bodoni, were not popular until needed improvements in presses, paper, and inks had been effected. (On all this cf. Updike [1571].)

English printers were, for the most part, engaged in the publication of newspapers, local pamphlets, and official publications, and the miscellaneous job-printing which characterizes the small-town press to-day. William Bowyer and his son of the same name conducted a printing-house, well through the century. Updike notes a vote of thanks sent the younger Bowyer from Harvard College in 1767 for several valuable books presented to the Library. It was William Bowyer who first used Caslon types, in an edition of John Selden's works (1722).

Samuel Richardson is more noted as the author of *Pamela* than for the printing business which he conducted from 1706 till his death in 1761 (Updike). He printed parliamentary journals and a few volumes each of several periodicals, among them the *True Briton*, *The Daily Journal* (1736–37), and the *Daily Gazetteer* for 1738. He printed and published his own novels, *Pamela* (1741), *Clarissa Harlowe* (1747–48), and *Sir Charles Grandison* (1753).

Robert Foulis became printer to the University of Glasgow in 1743. His brother Andrew became his partner in 1744. They used clean, legible types, mostly cut by Wilson of Glasgow. They printed Greek and Latin classics and fine editions of several English authors: a quarto edition of Gray's *Poems* (1768), *Paradise Lost* (1770), the *Poetical Works of Alexander Pope* in three folio volumes (1785), the *Iliad and Odyssey* (1756–58), Horace (1744, known as the "immaculate" because it has but six known errors), etc. They also published many editions in smaller formats at moderate prices. Their books are still eagerly sought by scholars because of their careful editing, and by collectors because of their excellent printing.

Thomas Bensley, whose work chiefly belongs to the nineteenth century, printed Mackin's edition of the Bible, in seven folio volumes (1789–1800), a folio edition of Thomson's *Seasons* (1797), illustrated by engravings by Bartolozzi and Tomkins (a well-known collector's item), etc.

William Bulmer is known for his Shakespeare Press, at which he printed the famous Boydell's Shakespeare (1792–1802), in enormous folio volumes with plates; a folio Milton in three volumes (1794–97); and quarto editions of Goldsmith and Parnell. His edition of Somerville's *Chase* (1796), illustrated by Bewick, is another popular collector's item.

Throughout the entire century the Oxford University Press maintained a high standard of work. This was partly because, thanks to the generosity of Doctor Fell, it had one of the best type outfits imported from Holland and partly because of the careful work of the printers.

Of the several private presses, the best-known is the Strawberry Hill Press, started by Horace Walpole in 1757. Its products are considerably in demand, but more for their literary or historical importance than as specimens of fine printing.

In the British colonies, the development of printing was similar to that in England. Because of the difficulty of transportation, local presses—notably at Hartford, Conn., Newport, R. I., Annapolis, Charleston, and Williamsburgh, Va.—became centres of considerable importance during and after the Revolution. Practically all the printing equipment, both type and machinery, was imported from England or Holland. "It was not safe to publish any book higher than eighteen pence, except by subscription. Of the books published in the colonies before the Revolution, nine-tenths, at least, appear to have been sold at less than eighteen pence. The whole business of printing was trivial, and could be made profitable only by prosecuting successfully a great number of petty projects" (Oswald [1550]). It was not until 1771 or 1772 that the first American-made types, a German *Fraktur* cast by Christopher Sauer, of Philadelphia, were commercially used. American-made roman type appeared in the first number of the *Pennsylvania Mercury*, April 7, 1775 (cf. Wroth [4]).

Several of the eighteenth-century printers are of historical importance. As printers they usually left much to be desired. Until about 1750, printing spread slowly. William Bradford was the only printer in New York until 1728, when John Peter Zenger set up his shop. Zenger is chiefly known for his trial, brought by Governor Cosby for alleged libel. His acquittal practically settled the question of liberty of the press in the colonies for many years (cf. Rutherfurd [1563]). Hugh Gaine (1750–1800) and James Rivington were New York's most notorious printers in the second half of the century, for their royalist publications rather than because of their importance as printers.

Andrew Bradford, son of William, was Philadelphia's chief printer until 1723, when Samuel Keimer, later the employer of Benjamin Franklin, set up his press. Franklin was beyond question the best-known of all American printers of his time (cf. Oswald [1550]). His printing career extends from 1717, when he was apprenticed to his brother James in Boston, to his death in 1790. Like most of his contemporaries, Franklin admired and chiefly used the Caslon faces. His open-mindedness is shown in his attempt to induce the Imprimerie Royale to buy Baskerville's types in 1767 and in his complimentary letter to Bodoni in 1787, commenting on his type. Like his contemporaries, his work ranged from good, as in James Logan's translation of *Cato Major*, to extremely bad. He printed books, pamphlets, and almanacs. He published newspapers. He printed paper money for New Jersey, cutting some of the ornaments and making the copperplate press. On some of this money the work is so bad that one wonders whether the threatened penalty "to counterfeit is death" should not have applied to the original engraver as well.

Two other noteworthy Pennsylvania presses are those of the Bruderschaft of Ephrata, which produced some excellent works, most religious, in German, and the press of Christopher Sauer (Sower), of Germantown, which was the centre of a rather considerable body of German printing.

Though Franklin made Philadelphia one of the best-known printing centres, Boston had more printers than any other place in the colonies. The religious and political agitation before and during the period of the Revolution and the Confederation gave rise to a constantly increasing number of publications, especially newspapers and pamphlets. A rough indication of its extent is seen in the fact that Evans's *American Bibliography* requires only one volume each for 1639–1729 and 1730–50, while seven volumes are required for 1750–94, and an entire volume is required for 1793–94 alone. The prefaces to Evans's individual volumes [1191] are excellent summaries of the growth of early American printing.

The difficulty of securing good type and presses from abroad, the scarcity of any such material made in the colonies, and the extreme scarcity of paper are extenuating circumstances for the rather poor work.

In France, at the beginning of the eighteenth century, there was a swing away from the ostentation and pomp of the close of the seventeenth. An increasing number of small books appeared beside the great folios of official memorials, etc. Type was more openly spaced and the page became more legible. Copperplate illustrations not only persisted, but developed to a perfection that has made eighteenth-century illustrated books justly famous. The delicacy of ornaments—head-pieces, tail-pieces, and vignettes—went far toward lessening the popularity of quarto and folio, for they could not so easily be included in large volumes. These small French *éditions de luxe* usually really deserved the name, though they often degenerated into the affected simplicity which marked court manners in the reigns of Louis XV and Louis XVI. Pierre Prault was noted for his engraved title-pages and frontispieces by Boucher, Cochin, and other celebrated designers; his 1734 edition of Molière, in six quarto volumes, is an excellent example of the period. His son and successor, Laurent, also produced some commendable works, many of them illustrated by Moreau. Joseph Girard Barbou was the most notable member of a firm established in Paris in 1704 and running on through the century. His Latin authors in 16mo are still prized, both for their good printing and their attractive illustrations by Cochin, Eisen, and others. He also printed the famous *Fermiers-généraux* edition of La Fontaine's *Contes* (1762).

The Didot family is the most celebrated in French printing of this period. François began printing in Paris in 1713; but the family achieved their greatest fame in the last quarter of the eighteenth century. François Ambroise printed a famous edition of classic authors for Louis XVI in 1783. He cast his first font of type in 1775, and in 1780 introduced *papier vélin*, a fine, smooth-surfaced wove paper. He was a friend of Benjamin Franklin, who placed his grandson, Benjamin Franklin Bache, with him as a special apprentice. Pierre and Firmin, sons of François Ambroise, divided the business, Pierre taking the printing-office and Firmin the type-foundry. Pierre Didot's editions of Vergil and Horace in 1793 and 1799 (the *éditions de Louvre*) were for a long time considered masterpieces. Firmin Didot developed the Didot type, based on Baskerville, which has remained the standard French style, with its thin faces and sharp angles. The nineteenth-century Didots were also prominent in every branch of printing. They did good service in making cheap editions of standard works from stereotype plates —a process they did much to develop.

The Fournier brothers, Jean Pierre (*l'aîné*) and Pierre Simon (*le jeune*) were famous type-founders and designers. The former cast many fonts from historic matrices of the best French type-designers. The latter is notable for his borders, initials, and decorations designed to harmonize with the engravings and copperplate designs with which books of the day were so profusely decorated. He is also notable for his *Manuel typographique* (2 v., Paris, 1764–66), which discusses type design and founding very fully, and, above all, for his invention of a point system of type measurement, which, improved by the Didots, led eventually to a standardization of sizes of type.

Like their fellow craftsmen in other countries, the eighteenth-century Italian printers often relied on copperplate illustration and artistic decoration to overcome their mediocre typography. Rubrication was occasionally used with good effect. Though French influence is very apparent, national characteristics persist. The great printer of the century was Giambattista Bodoni, of Parma (1740–1813). Beginning with Fournier types, he developed, like Baskerville and the Didots, a sort of "modern-face" type, with sharp contrasts between the heavy and light lines. The issues of his press are in considerable demand by collectors. "The beauty of a Bodoni book lies not in its type, but in its arrangement and in its presswork. His followers copied his types, but were not so careful with their presswork, and Europe became filled with indifferent and bad imitations of Bodoni" (Morison and Jackson [1546]).

During the eighteenth century many French books, still in danger of suppression in France, were printed in Holland. Many books actually printed in France bore Dutch imprints, for precautionary reasons. "Bootlegging" in labels is not confined to any one country, period, or product. The chief connection of Holland with English printing lies in the type sold to English printers by Dutch founders, as in the seventeenth century. The general appearance of English imprints of the early eighteenth century shows the poor quality of these types. After Caslon faces became popular the imported Dutch types were much less used in England.

There is little favorable that can be said of the appearance of the average German book of the eighteenth century. The heavy copperplate title-pages of the earlier period gave way to pages of crowded letter-press in German gothic (*Fraktur*), with fat, distorted bodies and elephantine flourishes. The full-page illustrated title was gradually superseded by the smaller vignette, usually copperplate, or its place was taken by some extra lines of type, as in the fashion of the English seventeenth century.

"Everybody who has had occasion to consult German books of the eighteenth and seventeenth centuries will remember certain peculiarities of typography which they present. The old-fashioned faces of the German character are indeed very handsome, but when we find roman and italic and gothic all in one line, and the author as well as the printer (for both seem to have had a hand in it) parading their classical acquirements by putting every word derived from Latin in roman type and even spelling many words, half in one character and half in another—the effect is very bizarre" (Blades [1516]). Toward the end of the century the influence of Didot and Bodoni became felt and a reaction against the heavy gothic set in. Georg Joachim Goschen (1752–1828) and Johann Friedrich Unger (1750–1804) were prominent in this attempt to secure grace by designing the gothic with more slender lines. The result was not happy. The attempt to change the stylish stout to slender resulted in anæmia rather than grace.

Nevertheless, Blades calls attention to the respect paid to printing in Germany in the seventeenth and eighteenth centuries, and to the missionary attitude of the printer; and, regardless of typography, we still owe respect to Goschen, who published the first edition of Goethe's *Faust*, and to the first printers of Herder, Kant, Klopstock, Lessing, etc.; to Breitkopf and Härtel, and other great publishers of Gluck, Mozart, Beethoven, etc.

The student or book-collector interested in first editions of literary texts will find generally adequate reference-books for each language and country (cf. chap. 10), and a fair number of monographs concerned with bibliographical problems of particular works and editions.

Less seems to have been done, however, with other branches of literature. We know fewer collectors of special editions of scientific books, and disappointment too often awaits the student who looks in the public or university library for first editions of Adam Smith's *Wealth of Nations*, Blackstone's *Commentaries* (1765), Priestley's *Experiments and Observations*, Linnæus's *Systema naturæ* (1739), Darwin's *Origin of Species* (1858), or the *Encyclopædia Britannica* (1770) (so far as we know, not a single collector has yet taken up the very interesting and important "hobby" of collecting encyclopædias!).

THE NINETEENTH CENTURY

The greatest advances in printing in the nineteenth century were due to the improvement of the printing-press, the improved methods of making paper, the introduction of mechanical typesetting, and the rapid spread of photo-engraving, both in stereotyping and electrotyping. Rapidity of printing and the multiplication of cheaper books rather than any great artistic improvement were the results of these mechanical devices.

In the last few years of the eighteenth century, under the influence of Baskerville, Wilson, the Didots, and Bodoni, the sturdy old-faced types of Caslon gave way to the lighter-faced, more openly set transitional faces (Dibdin's *Bibliographical Decameron* [1058] is a good example). For the greater part of the nineteenth century these "modern romans" held their place. The Scotch roman of Wilson and some of the later modern romans are still used. Their sharpness and the contrast between their light and heavy lines make them suitable for many kinds of work, but it is doubtful whether their use would have continued so long if their monotony had not been relieved by the flood of illustrations which followed the introduction of photographic processes.

This was the century of the spread of free schools, of the popularizing of higher education. It was the century of literary and historical societies, of the free public library and of the rapid growth of the great reference libraries. Science no longer lurked apologetically in the background. It became the dominant force, and in some cases coupled its undoubted search for truth with an ill-concealed contempt for art and literature. As in the strenuous days of the Reformation, the Thirty Years' War, or the English and American Revolutions, people were more interested in the contents of a book than in its appearance, and even art followed strange ways. The pseudo-classical frame buildings and public buildings of brick, and the Roman place-names of New York State, indicate the rather futile way in which the conscientious "high-brow" of the early century sought to acquire and disseminate culture. This was followed by the Centennial period, when life-sized busts made of butter, wax flowers, mansard roofs, the Albert Memorial, Eastlake furniture, chromos, cast-iron soldiers and sailors, and plaster-of-paris statuettes were the visible signs of the inward urges of our immediate ancestors. It was the century of experiment and new frontiers.

In 1803, the Fourdriniers invented the paper-machine. Previous to this all paper was made by hand, a sheet at a time. The hand-made product, at its best, is still unsurpassed. At its worst, it was as bad as and sometimes worse than ordinary papers of to-day. The Fourdrinier machine made the paper in rolls, in which the pulp was matted and the pulp sheet pressed and dried in a continuous process. The use of wood-pulp and wood-fibre resulted in still cheaper paper, and by machine processes almost any kind of surface could easily be given to it—smooth and coated papers, on which the smallest and thinnest types or the most delicate lines in engravings could be brought out much more legibly than on the stronger, rougher hand-made paper, even when hot-pressed as Baskerville used it.

In 1798, Charles, third Earl Stanhope, invented a press with a cast-iron frame and a combination of levers for working the screw. This was the first substantial improvement in presses since the press of Willem Janszoon Blaeu in 1620, although others had made some minor improvements (e. g., cf. Thiboust's *Excellence de l'imprimerie* 1570).

Other improved presses followed—among them the Washington hand-press, which is still used for fine proofs and in some fastidious job-shops. The cylinder press of Friedrich Koenig (used by Thomas Bensley in 1812–13) and the rotary, in their various forms, followed. These made possible thousands of impressions in an hour, and are responsible for the success of our modern newspapers and magazines, which circulate by hundreds of thousands. Even the finest book-work was turned off at a speed unthought of before. Nineteenth-century printers, especially before 1850, were much inclined to advertise their "steam printing-press" as the acme of speed and efficiency (cf. Hoe [1536] and Peddie [1553]).

The stereotype plate had been invented early in the eighteenth century (1727) by William Ged, of Edinburgh, but met with such opposition that it was used for only a few books (the most prominent a Sallust, in 1739). Its use was revived by the Didots in their stereotyped edition of Racine (1799), and gained additional impetus through the possibility of more even impressions, with the Stanhope press.

The greater rigidity of the printing-press, the greater variety of paper surfaces, and the stereotype process had one unfortunate effect, in making practicable the small-type, double-column, fat octavo "Complete works," "Select works," "Library of," etc., which fed the minds and marred the eyes of our grandparents, especially from about 1830 to 1880. Two remedies were invented which were worse than the diseases of monotony and lack of emphasis in the thin-faced roman type. Fat-faced fonts (i. e., letters with very fat and very thin lines) were much used, especially in the United States from about 1820 to 1850—and still have uses (not always recognized by our contemporary printers) in posters and as a display-type, in preference to the much overworked italics. Printers' ornaments, "rules" and "borders," and fancy fonts for titles, headings, and initials grew to a frightful degree of complexity and ugliness.

Likewise in England, the average piece of printing did not have even the semi-attractive, slovenly, careless look of seventeenth-century printing. Like a spoiled child, its faults were those of deliberate smartness. The average book, up to the late eighties, was often pretentious, frequently correct as to technique, but seldom of real artistic merit.

The credit for the first reaction against poor modern printing belongs to Charles Whittingham, of the Chiswick Press, who revived the use of the original Caslon faces in *The Diary of Lady Willoughby*, which he printed for William Pickering

(1844). This began a reaction in favor of old-style faces, at least among discriminating publishers like the Chiswick Press (which still continues its intelligent use of the better old styles of types, both English and French, and its skilful use of initials and harmonious decoration). Unfortunately, it was only among the discriminating that this influence was felt.

In 1890, William Morris began to design the types for the Kelmscott Press. Its first book, the *Story of the Glittering Plain* (1891), was printed in the famous "Golden" type, an adaptation of one of Jenson's romans. It was named from the *Golden Legend* (the first important book printed with it). Two other Kelmscott types are the "Troy" and the "Chaucer." The first of these was a simplified gothic based on Schoeffer, Zainer, and Koberger, and was first used in the *Histories of Troye* (1892). The Chaucer type (used in Morris's edition of *Chaucer*, the most luxurious of his imprints) was a smaller size of the "Troy" type. "It cannot be denied that the Kelmscott books are examples of triumphantly executed workmanship, but, at the same time, it is impossible not to feel that they are achievements in decorative art rather than in typography" (Aldis [1512]).

Nevertheless, it was Morris who started the revival of carefully made, harmonious, well-planned books. His types were imitated and misused,* but led to more careful, conscientious work, even in cheap books. (Cf. Sparling [1568]).

Many private presses, devoted to the advancement of fine printing, sprang up as a result of the short-lived Kelmscott Press. Only a few can be mentioned. Emery Walker and T. Cobden-Sanderson (the former an associate of Morris and the latter a bookbinder of note) established the Doves Press (1896–1922). Unlike the Kelmscott editions, the Doves Press books have no ornament, but depend on simplicity, harmony, and proportion of type. Their books are in one roman font, lighter than the "Golden." The Vale Press was founded in 1896 by Charles Ricketts, who designed the types ("Vale," "Avon," and "King's") and most of the decorative cuts and ornaments, and supervised their arrangement. The Ashendene Press (1895–) of C. H. St. John Hornby has printed a few books, all of them of distinction. Among the best-known are the Dante (1909), *Le Morte d'Arthur* (1913), and Boccaccio (1913–20). This is the only one of the earlier private presses still active.

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* The worst example we know is an edition of Edward W. Townsend's *Chimmie Fadden Explains* (N. Y., U. S. Book Co., 1895), printed in an imitation of Morris type with an imitation Morris title-page. A more successful attempt is seen in the title-pages to *Everyman's Library*.

The Eragny Press of Lucien Pissaro is noted for its illustrations from colored wood-blocks. The limited editions printed at the Oxford University Press, from 1877 to 1919, from Fell types, under the direction of Reverend C. H. Daniels, deserve mention. Doctor Daniels's imprints were a private venture, but the Fell types have since been used in the *Oxford Book of English Verse,* in the reprints in the *Tudor and Stuart Library,* etc.

The reform in printing in the United States may be seen by a comparison of the specimen books of Francis Hart & Co., of New York, just before Theodore De Vinne took over the business, with the faces recommended by De Vinne himself in his *Plain Printing Types* 1526.2,* and *Types of the De Vinne Press* 1526.6.

The influence of Morris and his followers was soon felt. The Merrymount Press was founded in 1893 by D. B. Updike, one of the foremost American printers now living. Mr. Updike did not neglect artistic ideals, but, unlike some of his English contemporaries, he interested himself in publishing books for ordinary commercial trade (his own book on *Printing Types* is an excellent example). The list of his imprints includes a surprising range of subjects and publishers, and all his work warrants study. The Wayside Press, of Springfield, Mass., under the direction of Will Bradley, was inclined to use heavy-faced type (a reproduction of Morris's "Golden") and heavy decorations. Their "chap-book" figures and ornaments are still used. Bradley had more influence on commercial printing than on book-work; his heavy pages attracted attention—a prime merit in advertising—but were tiring for consecutive reading—a major fault in books. Theodore De Vinne became widely known for the simplicity and dignity of the books and magazines he printed for the Century Company and others. The Riverside Press, of Cambridge, issued some very good books, judged from an artistic standpoint, and the Knickerbocker Press of G. P. Putnam's Sons used Caslon and old-style faces rather successfully, long before they became the vogue. Many other commercial presses were doing fair work now and then. The Village Press of Frederic Goudy, established in 1893, did excellent work in a rather small volume. Mr. Goudy's later renown as a type-designer has overshadowed his skill as a printer. Whether one agrees with the opposition or the supporters of Thomas Mosher of Portland, Maine, is not important from the point of view now considered, but there is no doubt that the man and his work ought also to be considered in any study of American printing and publishing of this period.

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* The 1878 specimens of pointed texts and black letters fill 158 pages, including ornaments. There is every variety of fussy detail on the letters, which range from the Eastlake-looking Victoria to Fancy Text and Black Rim Shaded. Special attention is invited "to the Caxton Black from very old matrices, some of them made during the first half of the sixteenth century, possibly for Richard Pynson or Wynken de Worde."

In France, the Didot types dominated book styles for most of the century. About 1850, six years after the Caslon revival in England, Louis Perrin, of Lyons, revived a series of "Elzevir" types. These were later used extensively by the Parisian publisher, LeMarre. They did not materially affect the general style of the better books or commercial printing. The revival by William Morris had little apparent effect.

Up to about 1850 the average German book was innocuous rather than admirable or distasteful. A glance at almost any edition of the classics or of popular books printed in *Fraktur* will give a good idea of nearly all of the others. From about 1850 to about 1890, they became more overloaded with decorative borders, highly colored lithographic illustrations, profusely decorated types for title-pages and headings—in short, the shortcomings of other countries, modified by passing through a solution of German artistic and architectural ideas.

The very excess of bad taste prepared the field for reformation. When William Morris began his Kelmscott printing, his ideas were taken up almost at once.

The active renaissance of German book arts began in 1895 with the periodical *Pan*. This was notable both for its typography by Drugulin and for its decorations and illustrations by an eminent group of artists. Prominent among these was Max Klinger, "the father of modern German book art." *Blätter für die Kunst* (published by Stephan George and printed by Otto von Holten under the supervision of Melchior Lechter, who designed for it his distinctive "George" type) had begun to appear in 1892. *Die Insel*, founded by the Jungdeutsche Dichter, first appeared in 1899. It was printed by Drugulin for Schuster and Loeffler, who, with Fischer, Diederichs, Albrecht Langen, and the Insel Verlag, are the chief publishing-houses responsible for the modern German book.

The most laborious and expensive operations of the old-time printing-office were setting the type by hand and cleaning it and "distributing" it back into its proper cases when the work had been printed. Misplaced types due to bad sorting were common and costly. Type was too expensive to replace often, and the temptation to use worn and battered type was strong for any but the well-financed or fastidious office.

Typesetting machines began to appear about 1840. The Kastenbein, the Paige, and the Simplex are among the earlier machines which have been largely replaced by the Linotype (used first about 1886) and the Monotype (cf. chap. 2).

THE TWENTIETH CENTURY

Much of the movement for better books in the twentieth century must necessarily be prophecy. Nevertheless, with more than a quarter of the century gone, certain tendencies have become apparent. The reading public has increased, in spite of the counter-attractions of the public dance-hall, the moving-picture theatre, the golf-course, and the automobile. Business still dominates world activities, but even business is beginning to recognize the monetary value of products that satisfy as well as attract attention. Advertising is not only concerned with prices but with appeals that will excite desire and cause the return of pleased customers. The power of printing as a social force is being recognized—witness the flood of war posters, bill-boards, and illustrated advertisements. The equally extensive flood of carefully printed advertising pamphlets bears still more eloquent witness, for these are expected to follow up and make permanent the impression begun by the illustration. Type design and arrangement, the relation of paper and illustration to type, and the psychological appeal of the whole format are being studied as never before. As in all periods of progress, some of the experiments are pathetic and some merely amusing. On the whole, the movement seems tending toward basic principles, to a study of enduring styles and arrangements, modified so as to be in harmony with the changed conditions of the time. When the real and alleged restlessness of the age is considered, one cannot help feeling pleasure at the rapidity with which fussy detail, illegibility which leads to fatigue, and the putting of dignified and worthy subject-matter into cheap and undignified dress are being eliminated from all kinds of printed matter. The great typographical unions and employing printers agree that the success of printing and printers depends on a knowledge of art as well as on speed.

The movement has been so rapid and so wide-spread that it will not be possible to give credit even to all who have had a major part in it. Our account of the printing-revival in England in the late nineteenth century should be supplemented at least by the mention of a few later presses distinguished for their novel work, such as the Nonesuch Press, the Golden Cockerel Press, etc. English printers are at present inclined to be rather conservative in their adoption of new type-design and new typographic tradition. Modern romans still appeal strongly to many printers and many readers, especially in commercial and small job-work. The smaller provincial shops and many advertising men seem unable to rid themselves of the tradition that quantity of material and variety of type faces are prime features of good printing.

The printing renaissance, as it has been called, was a little slow in starting in the United States, but progress, once the movement had started, has been rapid. The Riverside Press, with which Bruce Rogers became associated in 1899, has won distinction from its beautiful limited editions and from its many well-planned, well-executed trade editions. Updike, of the Merrymount Press, has continued to add to his reputation by his later work. Several university presses, notably those of Harvard, Yale (under the direction of Carl Purington Rollins), Princeton (assisted, for a time, by Frederic Warde), and Chicago, have issued books of unusual typographical merit.

A creditably large number of commercial printing-houses have done work which has attracted the attention of collectors and students of fine printing. Many of these have been long established, but have won notice chiefly through their later work. T. M. Cleland, W. A. Dwiggins, the Marchbanks Press, Norman Munder, the Marion Press, the Pynson Printers, W. E. Rudge, the Country Life Press of Doubleday, Doran & Company, the Vale-Ballou Press, and the Lakeside Press of R. Donnelley & Company, are a few of the many who deserve mention. The University Press, of Cambridge, Mass., has for generations been printing very respectable, honestly-made books on many subjects, for many publishers. The *Fifty Books* of the year (1924–), travelling exhibits of the American Institute of Graphic Arts [1514], not only show tendencies in typographic design, but they show quite as strikingly the spread of good printing. Each year some of the best work has been done by commercial presses. Many of these have been small establishments, in places not generally known as printing-centres.

The growth of artistic machine composition has been a feature of the century. As late as 1903, De Vinne [1526.2] prophesied that machine composition would not soon compete with the skilful hand-compositor. But of the *Fifty Books* in the exhibit of 1925, 28 were machine-set. Both the Linotype and the Monotype have many special faces cast for them, often with appropriate borders and ornaments. Edward E. Bartlett is the typographic expert for the Mergenthaler Linotype Company, while Frederic W. Goudy is the expert for the Lanston Monotype Company. Hand-composition, however, is by no means superseded. The two largest type-foundries, the American Type Founders Company and Barnhart Brothers & Spindler, have typographic experts and designers in their employ. A very encouraging feature of the situation is the frank criticism with which each new face or adaptation is greeted, and the admission of the limitations of special faces. Experiment is encouraged, but the tendency seems away from the domination of a single style and toward attempts to adapt type to subject-matter and purpose.

American paper-makers have done their share. If they have cheapened the quality of the average book or newspaper, there is also an increase in the number of paper-mills which will furnish good papers to publishers and printers willing to pay for them. Cheap books, pamphlets, and newspapers of low cost are usually ephemeral in character as well as lacking in material durability, like the cheap books and tracts of earlier days. Books are poor chiefly because the average reader does not know enough to want better ones. Although the centuries in which printing as an art sank to low ebb were fruitful in distributing books more widely, and there is still need of cheap books in the poorer communities and for poorer citizens of the United States, it is not unreasonable to think that a country which can afford such expensive clothing, costly foods, high-priced cars, and extravagantly-priced tickets to athletic and sporting events could get good books if it wanted them. There is considerable evidence that such a demand is growing.

In Germany, the revival of printing, which began about the time of Morris, continues, and, with it, the influence of English printers and type-designers. One of the earliest features was a spirited and often acrimonious dispute over the relative merits of roman (German *Antiqua*) and the German text or *Fraktur* types (cf. Brandi [1459]). Rudolf Kautzsch [1539], in 1902, edited a series of studies on the new art of the book, which summarized the movement in Europe and in America. This was printed in type which was neither roman, *Fraktur*, nor *Schwabacher*. Other attempts to attain the legibility of roman with *Fraktur* or *Schwabacher* characteristics followed. The more conservative attempted to make *Fraktur* rather more legible. In addition to the late-nineteenth-century publishers already noted, Georg Müller, Kurt Wolff, Poeschel & Trepke are a few of the publishers who aided later in the movement for better books. As in England, private presses had considerable influence. Rodenberg lists 34 between 1900 and 1925. The Bremer Presse, Ernst Ludwig-Presse (a private press of the Grand Duke Ernst Ludwig of Hesse), the Insel-Presse, Kleukens-Presse, Officina Serpentis, Rupprecht-Presse, and Einhorn-Presse (founded and managed by Melchior Lechter) are some of the best of these. Prominent artists were employed to design the types, decorations, and ornaments of the issues of these presses.

The modern German edition de luxe is of recent origin. Japan, vellum, and other high-grade papers have been in fairly general use only about twenty years. The improvement in typography and illustration was supplemented by elaborate hand-bindings in leather.

At first these de luxe books were issued in very limited editions. When German currency depreciated during and after the World War, fine editions, like other articles of luxury, became best-sellers. Some 80 new presses were established, most of them lasting only a few years. Under the influence of this large increase in high-priced, expensive books, the ordinary editions have become matters of careful design and of much greater artistic merit. Type, paper, illustration, and even the binding are being regarded more and more as component parts of one artistic unit—the finished book. Despite much that is still extravagant and bizarre, Germany has, by its open-minded attitude toward typographic experiment, again become a leader in the field of good book-making.

The Leipsic book-fair in 1914, interrupted by the opening of the World War, had already prepared American book-lovers for the smaller but typical book-exhibit by the German Booksellers' Union (*Börsenverein der deutschen Buchhändler*) held in Chicago and New York in the autumn and winter of 1925 (cf. Koch [1540]).

Herman George Scheffauer [1267] indicates the difference between the English and the German revival in eulogistic but nevertheless accurate terms: "Thirty years ago German books were uniformly dull and hideous, bound either in drab-colored or marbled boards, or in linen, tastelessly embossed with scrolls, flourishes, or classic ornaments. Better or de luxe editions were printed on heavy paper, bound in tortured leather, and embellished with much gilding and conventional color and ornament. Then came the renaissance of printing and binding which William Morris and Cobden-Sanderson inaugurated in England. They confined themselves chiefly to reviving a lost art, and adhered more or less strictly to the models of the old English, Dutch, German, and Italian masters. The movement was, therefore, though in a beneficent sense, reactionary, or at least archaic. In Germany the movement, proceeding simultaneously from the sound basis of the German printers of the fifteenth century and under the leadership of men like Georg Hirth, Otto von Holten, Huttler, and Philip von Zabern, began to develop in a modern direction. Creative book art became firmly established as an artistic and cultural factor. . . . Harmony between the contents and the dress of a book became a law. Type, material, decoration became the fruit, not of the hack commercial designer, but of an artist's thought, toil, and inspiration." (Cf. Koch 1540.)

Scandinavia has, for the most part, followed the lead of Germany, but has gone much farther in the adoption of roman type, and, in general, has avoided many of the wild extravagances of the German extremists.

As French printing had never sunk so low as English and American, it was less affected by the revival. The use, in many de luxe editions, of woodcut illustration and heavy coarse type has not displaced the characteristic lighter line-engravings in copperplate, zinc line, or collotype. The Cochin types of Gustave Peignot (1912–13) show a tendency away from the primness and monotony of the Didots; but the happiest revivals are those of the types designed by Garamond and Grandjean, e. g., in Pelletan's well-printed and daintily decorated series, the *Almanach des bibliophiles*, etc. The Imprimerie Nationale, under the direction of Arthur Christian, used with good effect large sizes of Garamond and Grandjean types in Claudin's monumental *Histoire de l'imprimerie en France* 1524. Christian's *Débuts de l'imprimerie en France* (1905), with each chapter in different Imprimerie Nationale types, is virtually a specimen-book of many of the best French fonts. Aside from a regrettable, though perhaps unavoidable, tendency to use very bad paper, the ordinary French book of the present shows more attention to legibility and balance and harmony in design than its predecessors of even ten years ago.

Like France, Italy has shown relatively little change in typographic taste since 1900, and the change has, in general, been a return to the older roman used by the earlier Italian printers, with a reaction away from the varied-line and sharp-angled types of Bodoni. The Fratelli Treves, Bertieri and Vanzetti (Instituto Grafico), Leo Olschki, the historic Vatican Press, and Ulrico Hoepli have issued some works of great merit in historic or modified types. In general, the better Italian books owe their merit rather to correct conventionality than to startling innovation.

CHAPTER XIV

BOOK-DECORATION. BOOKSELLING AND PUBLISHING

"The average German has more literary than artistic education; he can distinguish, by their content, good and bad books, but he generally lacks the feeling to distinguish externally beautiful and ugly books" (Loubier[1541]). That the Germans are not alone in this becomes all too evident from an inspection of a series of the classics of learning in any subject and in any country; and if there is anything in the contention of our contemporary printing-experts that format, type, ornament, illustration, and binding can be made to indicate or even suggest the character of the content, authors should make the utmost use of these details in book production, in order to advertise their books to the public they desire; and certainly students of older books cannot afford to neglect them.

Writing and printing, in their respective periods, have received more detailed attention than we shall be able to give to their less essential but no less characteristic sister arts. Furthermore, the distinguishing chronological and national traits in the latter appear more readily to the untrained eye; and there is pure delight in merely looking at the pictures in such works as Pollard's *Fine Books*[1562], *Das alte Buch*[1513], Ivins's *Guide*[1548] to the exhibition (1925) of the Metropolitan Museum, Holme's *Art of the Book*[1537], Loubier's *Neue deutsche Buchkunst*[1541], Crane's *Decorative Illustration of Books*[1585], Herbert's *Illuminated Manuscripts*[1581], Salaman's *British Book Illustration*[1593], Johnson's *Historic Design in Printing*[1587], Jennings's *Early Woodcut Initials*[1586], McKerrow's *Printers' and Publishers' Devices*[1424], Briquet's *Filigranes*[1595], Fletcher's *Bookbinding in England and France*[1599], Zur Westen's *Exlibris*[1606], etc., as well as in the many illustrated catalogues of dealers in rare books.

MANUSCRIPT ILLUMINATION

Whether or not writing itself originated in pictures, our oldest inscriptions are accompanied by pictures. The Egyptian

Book of the Dead is said to be our earliest illustrated book, but MSS. concerned with mathematics, botany, and medicine were not far behind. We lack direct evidence of illustration in Greek papyri, but illustrated codices like the Vatican Vergil (Fig. 83) and the Vienna Dioscorides (Fig. 84) represent a "Hellenic" tradition of art reaching back into the pre-Christian era, independently of literary traditions, e. g., in Pliny the Elder.

Byzantine art continues the tradition of the "easel-picture" style of illustration, but with an increasing tendency toward an Oriental decorative style—greater formality, symmetry of composition, suppression of background. (Cf. Fig. 85.)

The Irish schools of manuscript illumination (seventh to tenth centuries) began with pure decoration, not primarily illustrative of the text, but artistically united to it. (Cf. Fig. 86.)

The Caroline renaissance (ninth century) brought the classical, Byzantine, and Celtic styles together, and the high-water mark of illumination may be illustrated by a fourteenth-century MS. of Durandus (Fig. 87), in which the whole MS. page is an artistic unit—text-page, initial letter, picture, and frame form a harmonious decorative ensemble.

The decline in this unified treatment of text and illustration appears in a return to the panel pictures in later MSS. like that shown in Fig. 88.

The study of mediæval illuminated MSS. has developed, particularly within the last decade, far beyond such very broad generalizations. Students of mediæval art now date and localize styles and individual MSS. with an assurance and precision which palæographers do not venture to assert. The prime importance of these studies to the history of art may be exemplified by a quotation from Morey's *Sources of Mediæval Style* [1582]: ". . . to many this will sound like a paper on the style of mediæval illuminated MSS., since my material is mainly drawn from this field. The reason of this is the peculiar suitability of mediæval illumination as material for the study of style. It is continuous, with none of the long lacunæ that break the continuity of sculpture and frescos. Also, it is more faithful to its models, with a consequently greater value as an indication of stylistic source. On the other hand, the miniatures of MSS.

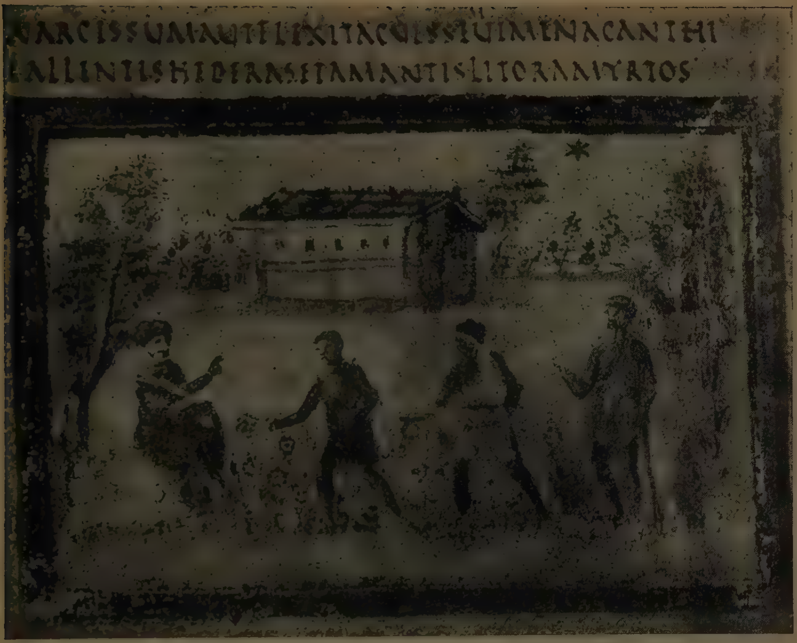
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Fig. 83. MANUSCRIPT ILLUMINATION, CLASSICAL STYLE, 4TH CENTURY.
Vergil, "*Georgics.*"
Vatican Library.

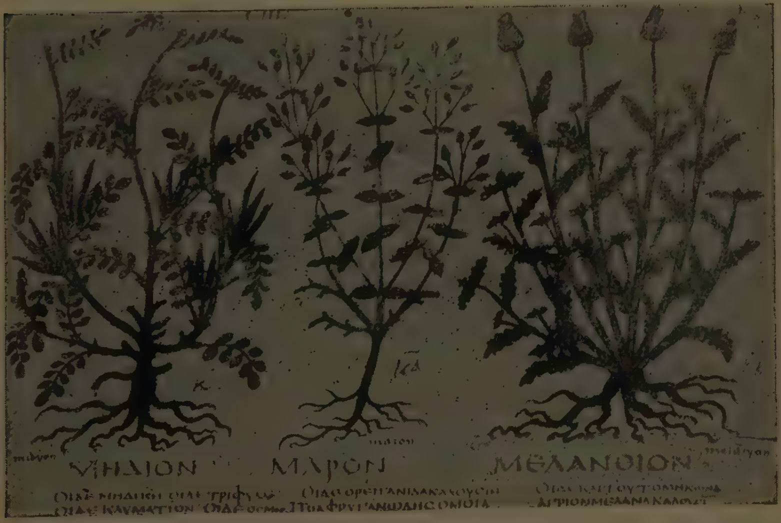


Fig. 84. MANUSCRIPT ILLUMINATION, CLASSICAL STYLE, 7TH CENTURY.
Dioscorides.
Vienna, National Library.

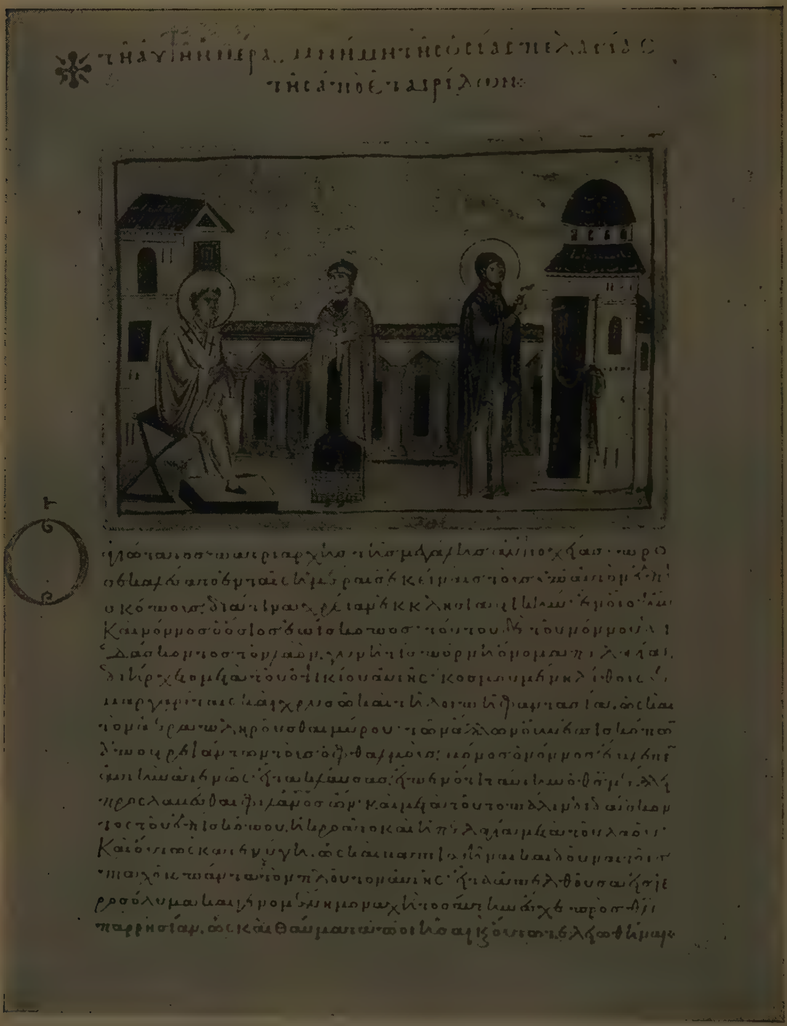
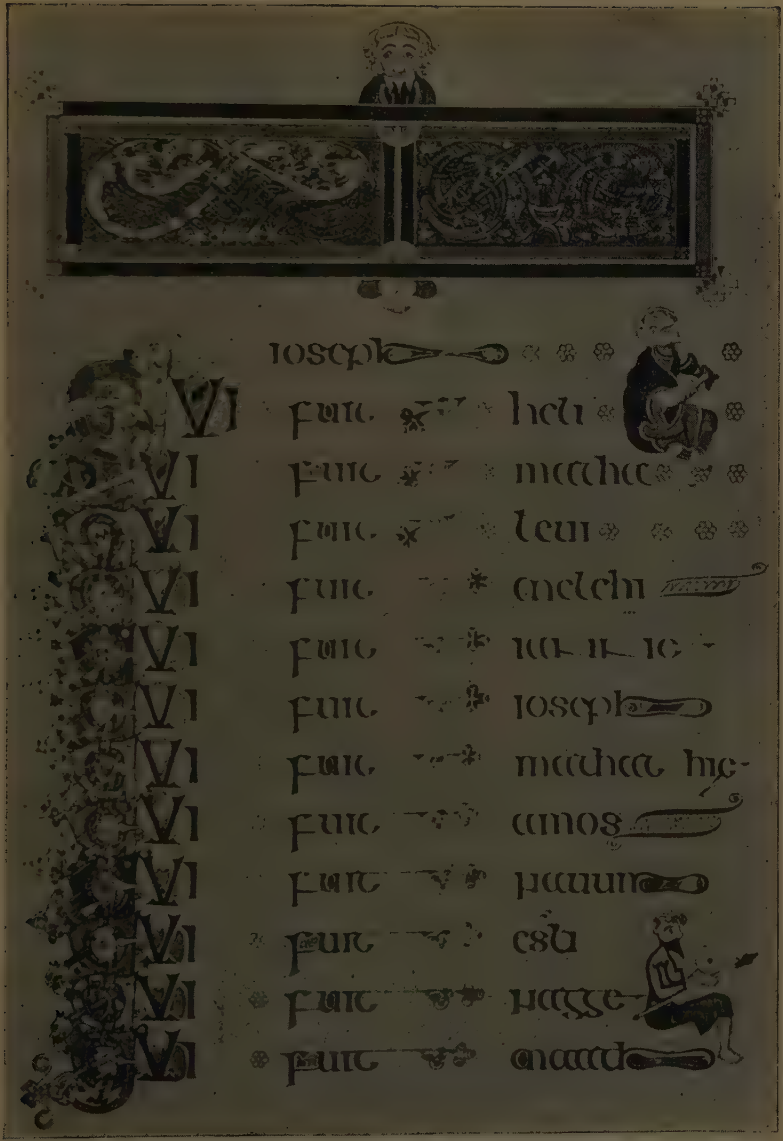


FIG. 85. MANUSCRIPT ILLUMINATION, BYZANTINE STYLE, 11TH CENTURY.

Menologium.

Vatican Library.



ioseph
VI fuit heli
VI fuit matthat
VI fuit leui
VI fuit melchi
VI fuit ianne
VI fuit ioseph
VI fuit matthat hie
VI fuit amos
VI fuit naum
VI fuit esli
VI fuit nagge
VI fuit maath

FIG. 86. MANUSCRIPT ILLUMINATION, CELTIC STYLE, 8TH CENTURY.
Lindisfarne Gospels.
British Museum.

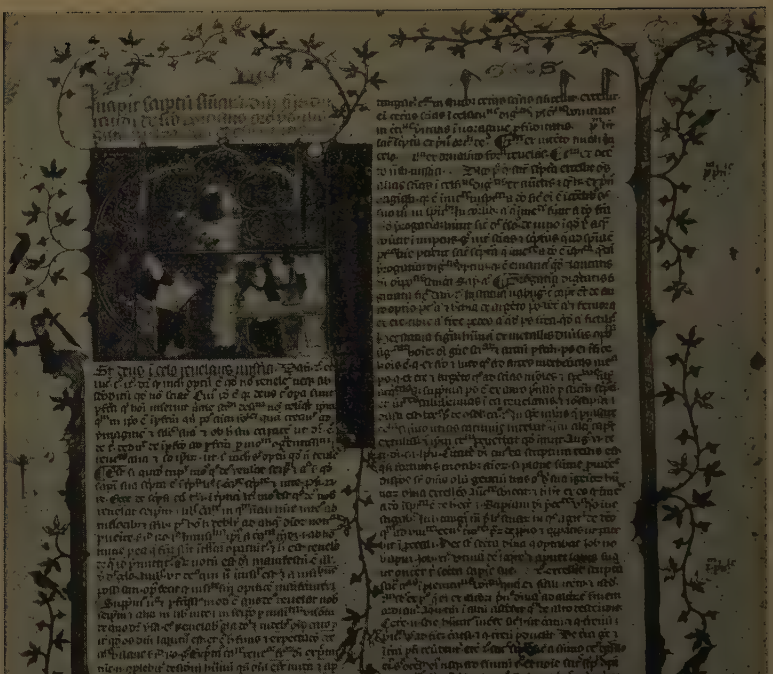


FIG. 87. MANUSCRIPT ILLUMINATION, 14TH CENTURY.
Durandus, "*In Sententias Petri Lombardi.*"
Princeton University, Garrett Collection.

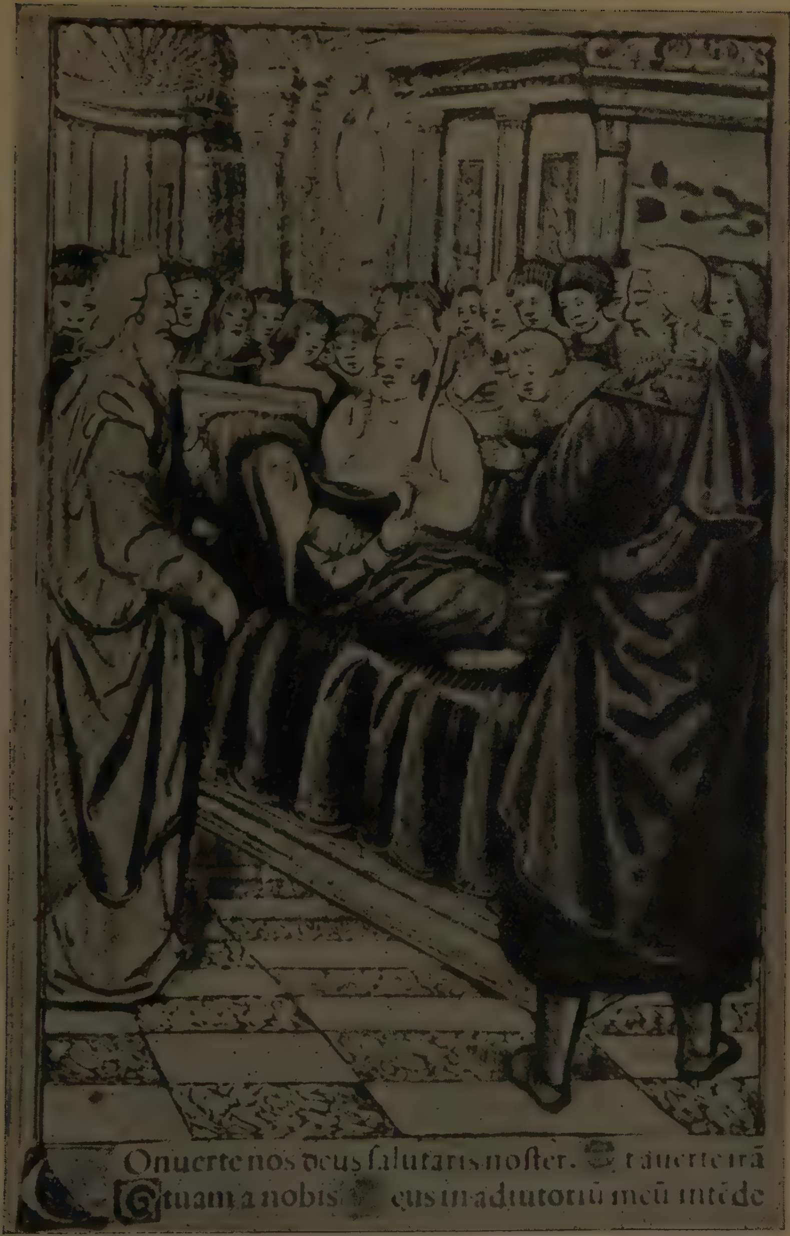

Onuerte nos deus ſalutaris noſter. t auerte irã
tuam a nobis eus in adiutoriũ meũ intẽde

FIG. 88. MANUSCRIPT ILLUMINATION, DECADENT STYLE, 15TH CENTURY.

Book of Hours.

Princeton University, Garrett Collection.

are equally dependable, if properly analyzed, as examples of period."

The miniatures, like later book illustrations, have also, of course, their independent historical and scientific values, e. g., in portraits (cf. Engelmann [1579]), pictures of buildings, etc., scenes from every-day life (as well as the romantic, fantastic, grotesque, and humorous—cf. Thompson [1583]), and the scientific or quasi-scientific drawings in botanical treatises, lapidaries, bestiaries, medical works, etc. (cf., for example, Choulant's *History and Bibliography of Anatomic Illustration* [1578]).

DECORATION OF PRINTED BOOKS. INITIALS AND ORNAMENTS

The harmony of text, miniature, and decoration varied according to style, as in the examples shown, and doubtless also according as the scribe and the illuminator were identical, in close collaboration, or independent of each other. Nevertheless, the whole MS. was hand-work, and unity of treatment was inevitable to a much greater degree than in the printed book. However, just as the early printing types were copies of MS. letters, the tradition of colored illustration by hand was maintained in many early printed books; and "illumined" books have been produced even in the twentieth century (cf. Farnsworth [1580]). The early application of more mechanical methods is instanced by the occurrence of stamped initials in MSS., and it was inevitable that the printed book should tend more and more to eliminate hand-work processes.

In writing, the hand moves continuously across the page, and the initial stroke of a letter was conditioned by the form and position of the letter immediately preceding; in type, each letter is an independent unit. The take-offs, finials, and connecting strokes, as they have survived in the serifs of letter-type, are nevertheless indispensable, since the eye of the reader comprehends more easily a connected group than a disconnected series. Likewise, illustrations and ornaments are no longer, mechanically speaking, organic with the printed text, but may be and should be made to appear so, for artistic and psychological reasons. Further, just as successful type-design and arrangement effect an artistic unity on the printed page and avoid monotony in the text and "horror vacui" in other parts of the page, so color-printing, illustration, and printers' ornaments have gone far to perform the functions of MS. illumination.

Peddie [1556] includes a summary "History of printing in colours." Fust and Schoeffer's *Psalter* (1457) (the first dated book) had initials printed in red and blue (or stamped in, after the book had been printed), and occasionally, later, initials or certain passages of text have been printed in red—our most numerous examples probably are the title-pages in red and black and the colored pictorial titles and covers. In general, however, color is limited in use to pictorial illustrations, usually made on separate leaves and inserted as plates.

The printed page itself is varied and ornamented chiefly by the use of initials, borders, head- and tail-pieces, etc., made and used like the type. Woodcut initials were first used by Zainer (Augsburg, 1471). Jennings [1586] gives examples from the fifteenth century of historiated and pictorial initials with full-page floral border, much in the style of the manuscript. Parallels may also be found in the MSS. for the conventional and fantastic animal figures (less popular and less adaptable to decorative treatment). On the other hand, the elaborate scrolls and arabesque patterns are traced through Italy possibly to a Saracenic origin, and architectural designs hark back to classical antiquity. The French Books of Hours of the sixteenth century have never been surpassed in their "graceful, semi-floral, semi-architectural" borders (Morison and Jackson [1546]). In other countries and later periods, ornaments declined, like type faces, into ponderous and heavy forms—title-pages in architectural frames, with a confusion of unrelated plant, animal, and human figures; series of separate metal flowers in framework or as head- and tail-pieces; etc. In the eighteenth century there was a reaction against them, resulting partly in their disuse (Morison and Jackson) and partly in lightening them, as type faces became lighter (Updike [1571]). Likewise in the nineteenth century, ornaments followed the same developments as type, and, in the revival of fine printing, considerable attention is being given to "flowers," with happy results in the hands of the best printers, but with an unfortunate tendency on the part of lesser printers to overwork most tiresomely their small stock, e. g., of ivy leaves. Vignettes, engraved pictorial title-pages, and printers' marks employ both ornaments and illustrations.

PRINTERS' MARKS

It is a question whether printers' marks were first used as trade-marks, to insure the publishers' rights against pirating, or whether we should consider them as artists' signatures. In early books, they are sometimes the only mark of the printer's identity. The earliest dated example is in Fust and Schoeffer's *Biblia latina* (1462). The best period was the early sixteenth century, when they became, as they have continued to be, an important feature in title-page decoration.

Roberts [1592] discusses a number of different motifs of these small emblems and pictures: punning signatures, rebuses (e. g., a griffin for the printer Gryphius); religious symbols and characters (e. g., Abraham, angels); personifications of Time, Peace, Fortune; the sphere (Elzevir and others); printing-press (Badius); mottoes (cf. Landauer's list of some 2,000 mottoes [1588]); crosses and monograms; musical notes; pictorial (rustic scenes, etc.); animals (bull, cat, eagle, salamander, stork, swan, etc.); mythical animals (e. g., the unicorn—used by Kerver, Plantin, and others—mermaid, phœnix, dragon, etc.); Hermes and other mythological characters; anchor (Aldus); fountain (Vascosan); etc.

The French printers' marks show the greatest variety. Geoffroy Tory's mark is a broken urn with the motto "Non Plus." The Estiennes used twenty different marks. The marks of Johann Reinhold Dulssecker (1696–1737) are said to be the most beautiful of many beautiful German printers' marks, if not the most beautiful of all (Roberts). The best-known Dutch marks are, of course, Plantin's Compass, with the motto "Labore et Constantia," and the Elzevirs' Sage, Sphere, Minerva, etc. Among the best-known Italian marks are Aldus's Anchor and Dolphin, which changed with various members of the family, and the Sessas' Cat.

There is available an increasing number of monographs on the printers' marks of all the European countries, and also on the marks of some of the more famous printers, a few of which are listed in our appendix. And it should not be without interest to note that our contemporary publishers also have their marks—e. g., Pickering, Longmans, Holt, Houghton Mifflin Co., Knopf, Scribner's, Chiswick Press, Constable, George Bell & Sons, Nijhoff, etc.

ILLUSTRATION

The block-books probably represent our earliest woodcut illustrations. In printed books, woodcut illustrations were first done by Albrecht Pfister at Bamberg (about 1461). One of his productions was an edition of *Biblia pauperum* (an invention of the manuscript period, designed for those who could not read or could read but little). Zainer's first dated illustrated book is an edition of the *Golden Legend*, in 1471. About twenty of his approximately 100 books have illustrations, and the majority of his later books have woodcut initials.

After the invention of the title-page (first complete example by Ratdolt, Venice, 1476, but not in general use before 1520), the custom grew of filling in the blank spaces with some design. The French printers and Caxton used their printers' marks (Caxton's successors continued to use his mark), but in Germany, on the other hand, this design was usually an illustration. The *Fifty Books* exhibits [1514] illustrate the keen interest of our contemporary printers in title-page design.

Breydenbach's *Pilgrimage* (1486, with illustrations by the painter Erhart Reuwick, who had accompanied Breydenbach on the pilgrimage), the *Nuremberg Chronicle*, Sebastian Brant's *Narrenschiff*, etc., have been said to mark a new departure, in the attempt or pretension to portray actual persons, places, and scenes which were described in the text, but were preceded, if not surpassed in accuracy, by the illustrations in mediæval scientific books (like the Dioscorides) and books of travel (like the *Mirabilia Romæ*). "Scientific" history is a comparatively recent development, and exact portraiture dates only from the invention of photography.

The importance of book illustration in the general history of art may be evidenced by the mention of a few of the artists of the fifteenth and sixteenth centuries, whose illustrations must be studied in connection with their independent drawings and paintings: Michael Wohlgemuth (teacher of Dürer), Dürer, Lucas Cranach, Hans Baldung Grün, Urs Graf, Hans Holbein, etc.

The Netherlands fifteenth-century woodcuts are somewhat more decorative in character than the German—even their human figures were more fantastic. Conway's *Woodcutters of the Netherlands*[1584] has distinguished the work of some 25 different workmen and their apprentices, with another group of blocks imported from France and Germany. The most prolific printers of woodcuts were Gerard Leeu, of Gouda and Antwerp, and Jacob Bellaert, of Haarlem.

As, in the Netherlands, illustrations for movable type were preceded by the block-books, so, in Italy, illustrations for movable types were preceded by playing-cards, which were an exclusive industry in Venice as early as 1447. Engraving on metal can be dated from about 1450. A border in a copy of the Subiaco Lactantius of 1465 may be the earliest Italian woodcut, but, as other copies lack this border, it is more probably an addition made some time after the printing. Probably the earliest then are the 34 cuts in Ulrich Han's edition of the *Meditationes* of Cardinal Turrecremata (Rome, 1467). Other fifteenth-century illustrated books from Verona, Milan, Florence, and Naples are of great individual interest, but for a continuous progress we look to Venice, where Ratdolt introduced printed initials and borders, in 1476. His *Fasciculus temporum* (1479) includes pictures of cities. "His brief Italian career entitles him to a place of some importance among the decorators of books, for though his illustrations were unimportant, his borders and initials have never been surpassed" (Pollard[1591]).

About 1490, small woodcut vignettes became popular, notably in Malermi's Italian Bible of 1490, two editions of Dante of 1491, and a Boccaccio of 1491, in which both vignettes and full-page illustrations were used. One of the most famous examples of elaborate illustrations is the *Hypnerotomachia Poliphili* (printed by Aldus in 1499)—perhaps even more because of its profusion of illustration and wide circulation than because of its artistic merit. The great influence of Aldus, however, was in the direction of cheaper books. "The delicate vignettes and outline cuts only appear in reprints, and in new works their place is taken by heavily shaded engraving . . ." (Pollard [1591]).

In France, illumination continued longer in popularity. But the "golden age" of French printing (late fifteenth to middle sixteenth century) produced the beautifully illustrated Books of Hours, the *Dance of Death*, etc., associated with the names of Antoine Vérard, Simon Vostre, Jean du Pré, Philippe Pigouchet, Thielman Kerver, Geoffroy Tory, etc. The later sixteenth century witnessed a "flood of bad taste" (Pollard), with reproductions of German designs unsuited to French type, and ornaments, with florid renaissance borders (a medley of architectural details, cherubs, etc.).

The good traditions of French illustration, like those of French type, passed to the Netherlands with Christopher Plantin, who employed famous artists—Alciati, Hadrianus Junius, etc. But his illustrations and borders were florid and heavy, and are the beginning of "a century and a half of bad taste from which only the microscopic editions of the Elzevirs are wholly free" (Pollard).

Spanish writing, printing, and decoration were all massive but handsome. The most characteristic decorations are the heraldic title-pages and the numerous excellent initials done in delicate tracery on a black background.

Caxton and his successors seem to have cared less for artistic ornament than for a practical, rough-and-ready kind of illustration (e. g., in Caxton's *Game of Chesse*, 1481). Caxton's most ambitious attempt was his illustrated *Golden Legend*. After 1500, all de Worde books and most others had illustrated title-pages—often made from stock cuts until the middle of the century, when borders and renaissance designs—some of them imported from Basle and elsewhere—became popular for title-page decoration.

The early illustrators were largely confined to woodcut engraving in relief, as that alone could be printed along with type. As a Florentine, Maso Finiguerra, was the first to print on paper from a piece of metal engraved in incised line or intaglio (c. 1450), so in Florence was printed the first book with engravings of this sort—Antonio Bettini's *Monte Santo di Dio*, printed by Nicolaus Lorenz (1479, three plates). In 1481 he attempted an edition of Dante. Sweynheym, a few years later, used the process for maps. The pictures in Boccaccio's *De casibus illustrium virorum* (Bruges, 1476, though the illustrations may be later), are imitations of MS. illuminations. In the latter part of the sixteenth century, engraving began to displace the woodcut, as, in art, the taste changed from line-drawing to an emphasis on realistic detail, light and shade. The consequences were separate plates, engraved title-pages, etc., and prints.

Joseph Pennell[1590] deplores the fact that great draftsmen like Claude Lorraine and Rembrandt were obliged to forego book illustrations and to resort largely to etching. Rubens's illustrations, for example, as published by Plantin-Moretus, were only bad copies from Rubens by another artist.

In the eighteenth century better work was done—especially in France. It was over-ornate perhaps and still engraved separately from the printing, yet the works of Cochin, Gravelot, Moreau, Marillier, etc., are unsurpassed in charm, and represent the perfection of this method of illustration.

Famous eighteenth-century German illustrators are: Georg Friedrich Schmidt, Preisler, Johann Georg Unger (who tried to revive woodcuts), Oeser, Meil, Angelika Kauffmann, Daniel Chodowiecki, and others who illustrated the Leipsic edition of Goethe (1787–90).

In England, Hogarth began as an illustrator in 1723 (e. g., Apuleius and *Hudibras*, etc.). Gravelot, a Frenchman by birth, illustrated Theobald and Hanmer's edition of Shakespeare. William Blake is another immortal artist-illustrator. Thomas Bewick revived the use of the woodcut, but with the difference that the methods and tools were those of metal engraving—the design engraved in white lines on a blackened cross-section of wood. Well-known examples of his work are the *History of British Birds*, *History of British Quadrupeds*, Gay's *Fables*.

In the nineteenth century, wood-engraving spread to the Continent. In France, Meissonier's drawings for the *Contes Rémois* were greater than his paintings. Adolphe von Menzel's illustrations for a *Life of Frederick the Great* entitle him to be considered the creator of modern illustrating (Pennell). He did not himself engrave on wood, as Bewick did, but guided his blocks through the engraver's hands.

About 1875 came the application of photography, so that the artist no longer had to draw on the block and did not have to reverse his directions. And since then the process print has developed to almost universal use. If you have forgotten them, look up again Tenniel's illustrations for *Alice in Wonderland;* Charles Keene's drawings in *Punch;* the work done by Cole and Abbey in *Harper's*, *Century*, and *Scribner's* (1875 ff.); Walter Crane; Kate Greenaway; etc.

In recent years an influence has come from Japanese color-prints. Their attractiveness lies partly in the color and partly in their conventional character. This conventionalism is also reminiscent of Gothic art and the early woodcuts, harmonizing with the revival of gothic type and representing a reaction from the detailed realism, which, after all—because of its very distraction of detail—often misses the correct emphasis in sentiment or circumstance. In color-printing, the Japanese use several blocks—one for each color. There is also precedent for this in earlier occidental printing.

Besides the colored initials in fifteenth-century books, Ratdolt in Venice and Augsburg, Jean du Pré in Paris, and the printer of St. Albans printed woodcut illustrations in various colors (red, blue, brown, yellow, green). In the sixteenth century, separate woodcut blocks were used in a chiaroscuro method, which reproduced lights and shades rather than colors, and marked a development from the simple line-drawing of the earlier woodcuts. The British Museum has some 185 prints, done by Johannes Teyler, of Nijmegen (seventeenth century), each in several colors at a single printing from a single intaglio copperplate.

The eighteenth century saw a great deal of color-printing by both old and new processes—three-color mezzotints, stipples, line-engravings, aquatint, and an unknown process invented by Joseph Booth.

The nineteenth century, as many of us remember, was the great day of "chromos," and chromo-lithography has, in a measure, held its own with the various photographic processes which date from the latter part of the century.

The present popular three-color process makes use, not of three separate blocks or plates fitted together, but of three photographic plates of the whole, made by means of color-screens, and printed successively, one over the other, in cyan-blue, crimson, and yellow, corresponding to the red, green, and blue-violet sensations of the negative. (On all this cf. Peddie [1556].) In the four-color process, a fourth plate is printed in black. This strengthens the whole print and gives greater range of tone. Both three-color and four-color prints are made from half-tones (a relief process) or by the offset process, in which the impression is made from a rubber-covered cylinder which has previously passed over an inked plate.

In addition to the artistic and practical considerations (cf. chap. 2) which apply to the different techniques, the content of the illustrations is a not infrequent topic of discussion. With the emphasis on the outward harmony of text and illustration, it is strange that there is not universal insistence on harmony of content, and yet artists sometimes prefer to draw on their own imaginations rather than to draw according to the specifications of the text—to present their own interpretation of a situation rather than to subordinate themselves to the author. To poetic flights the reader will very likely add a third interpretation, and the essence of humor and caricature seems to lie in some sort of contradiction—so the more interpretations the merrier. But in science and history the best photographic processes are none too accurate, and, even in the case of imaginative works, we have seen children disturbed by one too many storks in the picture, or making a hopeless puzzle of trying to find some of the forty thieves who are not there.

BOOKBINDING

The earliest form of book—the cuneiform clay tablet—had its measure of protection in an outer shell of clay, which was inscribed with a copy, abstract, or title of the content. The Roman wax tablets (diptychs) were protected by a blank or inscribed surface of wood. Similar diptychs of ivory or other material date from the first to the sixth centuries.

The protection of the papyrus roll was a cylindrical box or case, with a title-tag at the end. The columns suggest pages, and, had papyrus not been too fragile for folding, it might have been folded back and forth and have taken on a form similar to the Chinese books or the primitive bark books, and, one side being left blank, could have been bound by stabbing and lacing.

The processes of mediæval binding were not far different from those of to-day, except in materials. Vellum sheets were generally folded but once, making four pages; four or more of these folded sheets were put one within the other (a gathering, signature, or quire). Care was taken to fold in such a way as to bring hair side opposite hair side and flesh side opposite flesh side, as they differ in appearance. This is often an important consideration in dealing with fragmentary vellum codices. The quires were sewn together around bands of leather or vellum at the back. Then strips of leather were pasted over the entire back, to protect these strips. Finally, to prevent the curling of the leaves, the sides of the books were covered with boards and held together by metal clasps. The result is a "half binding"—boards and leather. The next stage is the "whole binding," leather covering the boards.

Paper has been manufactured in increasingly larger sizes, and there has been a corresponding increase in the number of pages printed at once and folded together in a single gathering. The heavy board covers are not required for paper books and have been superseded by lighter boards, vellum, and modern "boards" (i. e., pasteboard) covered with paper, cloth, or leather. The leather bands to which the gatherings were sewn have been replaced by cords.

The ornamentation of book-covers dates from antiquity. There are extant examples of ivory diptychs of the third century, and book-covers of the fifth century (cf. Eisen [1598]). Byzantine bindings were gorgeous with gold, silver, and jewels, and, toward the close of the Middle Ages, with velvet and silk (for examples cf. Brassington [1594]). In Western Europe there was the same magnificence in the bindings of Charlemagne and his period, and more elaborate enamelling of metals appears in the following centuries. In lieu of book-binding, or, in addition to the binding, book-satchels ("polaires") and book-shrines (Irish "cumdach") were used—particularly in the west.

Books which would permit of shelving upright, side by side, according to modern fashion, though not without harm to them, are those with wrought-leather bindings, which German binders, particularly at Nuremberg, brought to a richness which rivalled goldsmiths' work (Brassington). Italy has a remarkable series of painted bindings (thirteenth-century and later, some of them by famous artists—Duccio, the Lorenzetti, etc.). From the twelfth century to the sixteenth England seems to have led in the art of binding. English leather bindings were decorated with a variety of intaglio dies (printing the design in relief)—mythical animals, men on horseback, etc., as well as many geometric designs. The stamps were arranged in a formal border and, within this, in circles or parallelograms. The English stamps seem to have had an influence on Continental binders, but each country shows characteristically different arrangements in bands, panels, etc.

Few of the more costly bindings have escaped plundering and mutilation. Brassington makes particular mention of specimens in the Munich State Library, the British Museum, the South Kensington Museum, etc.; there are a few examples of mediæval bindings here and there in American libraries (notably in the J. P. Morgan Library), and a union catalogue of them should be made.

With the invention of printing and the increasing number and cheapness of books, the "trade bindings" rapidly outnumbered the more pretentious ones. But artistic binding continued, and even trade bindings are not without distinction. Koberger abandoned the use of small dies for larger tools which covered the whole sides of the book in handsome fashion. Fifteenth-century Italian bindings were frequently decorated with beautiful arabesque tracery thought to be of Saracen origin, and sometimes with circles and dots in gold or color. In the Netherlands, and still more in France, there were many beautiful panel stamps and borders, with foliage, animals, etc., perhaps copied from illuminated manuscripts.

Caxton's bindings were of leather, ruled with diagonal lines and stamped between with flowers and monsters, and usually bordered with a series of triangular stamps. In the sixteenth century, panel stamps—particularly a few with arms and emblems—became popular. At Cambridge, the stamping-roll was introduced and made possible a continuous ribbonlike pattern obviously preferable to repeated stamping with small dies, in decorating large folio volumes.

German sixteenth-century binding alone preferred the stamped bindings, but their pigskin material was not so well adapted as other leathers, and their designs were over-elaborate.

Italian binding set the style for the sixteenth century, with its geometric interlacings and conventional foliage, and its use of gold—all thought to be due to Oriental influence and still characteristic of Oriental bindings. The Medici, Orsini, etc., and the popes and cardinals, as book-collectors, were chiefly responsible for the development of Italian binding, but, early in the sixteenth century, the art may be considered as largely transferred to France—especially since recent investigations have made it appear that "Maioli" was not an Italian but a Frenchman named Mahieu (cf. Hobson [1600]). Francis I collected fine books, but Jean Grolier and Thomas Maioli are the names most associated with the first vogue of gold-tooled bindings. Grolier had lived in Italy and was a friend of Aldus (some of whose earliest bindings were gold-tooled); in France he employed Geoffroy Tory (who was a binder as well as printer and designer); and his gilt, polychrome, and mosaic designs of foliage and interlacings are still imitated and copied to-day. Unfortunately, the good structural qualities (in sewing, forwarding, etc.) are less faithfully copied.

Gold-tooling, gauffering, and even painting, were also applied to the fore-edges of books, especially in Venice, but occasionally also in France and England. But the mediæval method of shelving books with their backs toward the wall was changing to our modern method, and the practice did not continue, although fore-edge paintings are one of the attractive features, e. g., of the work of Edwards "of Halifax" (see below).

The cameo bindings, with which the name of Canevari is associated, were also popular in Italy at this time, but did not come into wide-spread use.

Until late in the sixteenth century, bindings are known chiefly by the names of their owners (Grolier, Henri II, Catherine de' Medici, Diane de Poitiers, etc.), whose names or devices often appear in the cover-design of their books, but from Nicholas Eve, who bound for Henri III in 1579, we have a long series of famous binders (some of them also named Eve). The later Eve style (also known as "fanfare") was a complication of geometric interlacings and a multitude of scrolls, wreaths, sprays, and flowers, filling every available bit of space on back and sides of the book—profuse, but delicate and brilliant.

The name of another royal binder, Macé Ruette, is connected with the invention or introduction of marbled paper (cf. Prideaux [1602]). Another French style, of shorter life, was the "pointillé," associated with the name of Le Gascon (about 1625). In this, the designs were made in an infinite number of gold dots—at first in the Eve style, but later only in a border or centrepiece. Le Gascon's tools "reached the height of delicacy and perfection" (Prideaux).

In England, stamped or blind-tooled bindings predominated until the middle of the sixteenth century. Under the Stuarts there was a special vogue of embroidered bindings—the British Museum and the Bodleian Library are said to possess bindings by Mary Queen of Scots and Queen Elizabeth respectively (Brassington). Gold-tooling is thought to have been introduced by Thomas Berthelet, royal binder to Henry VIII. The style is more Italian than Grolieresque. King James bindings are among the best and add to the foreign motifs, heraldic designs, thistles, etc.

The "Cottage" style may have originated in France, but is most characteristic of English bindings of the latter part of the seventeenth century at Oxford and Cambridge and those of Charles II once attributed to Mearne. The general outline of this design suggests a cottage-roof, but the spaces are filled in with a variety of interlacings, sprays, and small tools.

The eighteenth century, particularly in France, was an epoch of book-collectors and books for the collector. Luc Antoine Boyet, Antoine Michel Padeloup, Jean Christian Henri Lemonnier, and Nicholas Denis Derome (all representing families of bookbinders) are among the most famous artists who worked for Count Hoym and other famous eighteenth-century collectors. Boyet is noted for the strength of his forwarding work; his decoration consisted of a plain border, ornamental corners and edges, and a central monogram or device. He is sometimes credited with the innovation of ornamental inside lining of book-covers ("doublures").

Padeloup is rightly admired for "the beauty of his leather, the perfection of his forwarding, and the taste shown in his decoration" (Prideaux [1602]); he had excellent doublures and "dentelle" borders. On the other hand, his gorgeous but poorly designed mosaic bindings have been severely criticised.

Lemonnier is famous for his pictorial mosaics of landscapes, bouquets, etc. Derome continued the work and style of Padeloup, and is most famous for his dentelles. J. A. Derome, "le Jeune," evolved a new style of smaller and more delicate dentelle designs, including bird-figures ("dentelles à l'oiseau"); a deterioration in forwarding is marked by his "cropped" margins and "sewn in" bands (so as to get flat or open backs—cf. Davenport [1596]).

Noted English bindings of the eighteenth century are those in the Harleian style (bound for Robert Harley, first Earl of Oxford) and those by Roger Payne. The Harleian style made special use of large pineapple figures, in broad borders and central panels. Roger Payne is noted as an original genius—not the least original of his work are his itemized bills, which include descriptions of his work on particular volumes, of the shortcomings of the previous binders of the books, etc. His tools consisted of "crescents, stars, running vines and leaves, acorns, and circlets of gold. These were placed at intervals in the spaces to be decorated, and the field studded with gold dots. He was the first English binder who endeavored to make his ornaments appropriate to the character of the book" (Prideaux).

The late eighteenth and the nineteenth centuries include "countless imitators of all previous styles" (Brassington [1594]), but many none the less tasteful bindings. Collectors are justified in their admiration for Bozerian, Thouvenin, Trautz, Lortic, Niedrée, Duru, and other French artists, whose work, however imitative it may be, shows the finish and delicacy in which the French decorative arts have always surpassed. Equally distinguished names of English binders are Charles Lewis, Staggemeier, Kalthoeber, Bedford, etc.

Painted bindings and fore-edges were revived by John Whitaker and other binders of this period. Edwards of Halifax (in Yorkshire) also invented a technique of preparing transparent vellum so that the picture could be painted on the reverse, unexposed side.

The revivers of fine printing were also interested in fine binding—e. g., William Morris and Cobden-Sanderson, who was a binder before he was a printer. Cockerell, Prideaux, Riviere, Root, Sangorski and Sutcliffe, Sullivan, and Zaehnsdorf are among the well-known names of contemporary binders in England. In America, the bindings of the Grolier Club, for example, are well known, but few individual artists have devoted enough attention to bookbinding to achieve general reputation. (Cf. Holme [1587].)

BOOKSELLING AND PUBLISHING

Mumby [1612] facetiously states that the oldest booksellers on record were the Egyptian undertakers who provided the copies of the *Book of the Dead* which were buried with the mummies. The earliest libraries in Egypt and Mesopotamia were royal or temple archives, and we have no evidence of a reading public. Even in Greece, where all forms of literature were developed to the highest point, and where the ability to read and write must have been pretty general, many more people listened to orations, plays, and poetry than ever read them, and students have sometimes made too much rather than too little of the occasional references to the book-trades by classical authors.

The Romans no doubt collected books as they collected other antiques and plunder in conquered lands during the last two centuries of the Republic; and there was room for a book-trade of a sort. But doubt has been expressed whether the publishers' and booksellers' trade was well established even in Cicero's time (cf. Sommer, in *Hermes* 61 (1926)) in spite of the modern accounts we read of the publishing activities of Cicero's friend Atticus. (Cf. Birt[1607], Putnam[1613], etc.) From the period of Augustus, at least, we are sure that many copies of many books were written for public and private libraries, both in Rome itself and in many smaller towns. Passages may be quoted from Horace, Martial, and others to prove a considerable activity in bookselling. Yet throughout the Roman period, when patrons of literature and authors themselves possessed educated slaves, there was scarcely room for a publishing business in anything like the modern sense of the words.

With the fall of the Roman Empire, organized publishing and bookselling disappeared for several centuries, as far as any visible traces are concerned. Learning, such as it was, retired to the monasteries. There alone there was time for literary pursuits. There only, because of the power of the church, was there safety for the manuscript books. Where the monasteries or libraries came in the way of pagan invaders (as with the Caliph Omar at Alexandria or the Norse invaders of Great Britain), books and the book business were alike victims. It is doubtful, however, whether much more than a sporadic trade existed anywhere between the fall of Rome and the revival of the thirteenth and later centuries. There are traces here and there. Thus the legal code of the Visigoths in the sixth century specifically provided that manuscript copies of the Code should not be sold for more than four *sols* per volume. There is evidence of some exchange of manuscripts between monasteries, though the Dominicans are said to have prohibited any such commerce. Bishop de Bury, in the *Philobiblon*, implies that he acquired manuscripts from abbey libraries as well as from private persons. It is quite possible, as every book-collector can understand, that de Bury's acquisition of the volumes did not necessarily involve purchase.

With the founding of the universities at Bologna, Padua, Florence, Paris, Oxford, and elsewhere, in the thirteenth to fifteenth centuries and during the Renaissance, the importance of books became more apparent. Colonies of scribes and booksellers clustered around the universities or established large "scriptoria" in places conveniently near the great book-collectors. (Cf. Delalain [1607.9].)

Ancient and mediæval methods of book production and distribution are of comparatively little importance now in their business aspect, but their relation to the form and accuracy of the text is a primary consideration in textual criticism. The Alexandrian scholars are supposed to have divided the work of the older authors (e. g., Herodotus and Thucydides) into books according to the length of standard-size papyrus rolls, and later authors of papyrus books may have limited the extent of their different works, for the sake of a standard convenient format, in much the same way in which the extent of this book is limited by our desire to publish at a marketable price. (Cf. Hall [1609].)

Ancient authors or publishers have been pictured to us as dictating their works to a roomful of scribes, but this method of speeding up production would involve a corresponding loss of time in making corrections (Hall), and the errors which are found in extant MSS. are of a sort more likely to occur in copying than in writing from dictation. (But cf. also Stemplinger [1616].) Mediæval monastic scribes are shown to us in both text and picture as copying directly from a MS. If there was haste, the MS. was divided, quire by quire, among a group of copyists.

Certain details of method in ancient book-production were conducive to errors on the part of later copyists, e. g.: neglect of metrical divisions; writing in continuous script (without separation of words); lack of numbered lines and columns, which, combined with the inconvenient roll-form of book, led ancient authors to quote from memory, without either giving or verifying references, etc. (cf. Hall). The change from the papyrus roll to the vellum codex (about the fourth century) was accompanied by re-editions, a "codification" of ancient literature. "Authors survived or perished according to the value set upon them during this period" (Hall). Sometimes the different volumes (rolls) of a work were copied in the wrong order, and papyri mutilated at beginning or end might be copied without attempt to make the text complete, or with incorrect restoration, e. g., even of the author's name.

The correctness of MS. tradition always depended upon the accuracy, learning, and fidelity of the individual scribe, editor, or school. In the days when libraries and readers were few, there must have been a great variability in the copies made individually for private use. The scholars who assisted in the formation and arrangement of the great libraries of Alexandria under the Ptolemies edited the MSS., eliminating what they considered as interpolations in the original texts. Mediæval losses and corruptions were due to ignorance and inadvertence rather than to deliberate intent. The most careful period of copying was that of the "Caroline Renaissance" (ninth to tenth centuries), to which we owe about half of our Latin classics (Hall). The late Byzantine scholars, on the other hand, were guilty of many inadequate and puerile commentaries and emendations; and the Latin humanists committed many errors of enthusiasm, haste, and superficiality—even forgeries found a ready and gullible public.

Modern textual critics are less and less inclined to hasty or "conjectural" emendation. The chief basis of their work is the comparison ("collation") of all existing MSS. of a given work; on this they establish a family tree and a comparative rating of the MSS. A composite text from the best MSS. or families of MSS. thus saves many unnecessary and doubtful emendations. Further emendation may be plausibly based on the kinds of errors discovered in the different MSS. during the process of collation. Hall's classification of scribal errors is:

I. Confusions and attempts to remedy them: (1) confusion of similar letters and syllables; (2) misinterpretation of abbreviations; (3) mistranscription of words through general resemblance; (4) wrong combination or separation, wrong punctuation; (5) assimilation of terminations and accommodation to neighboring construction; (6) transposition of letters (anagrammatism) and of words and sentences, misplacing of sentences, sections, and pages; (7) mistakes in transcription of Greek into Latin and vice versa; (8) confusion of numerals; (9) confusion of proper names; (10) mistakes due to changes in pronunciation; (11) substitution of synonyms or more familiar words; (12) new spellings; (13) interpolation or the attempt to correct or to remedy previous omission.

II. Omissions: (14) haplography, or the omission of words of similar beginning or ending; (15) lipography (parablepsis), or simple omission of any kind.

III. Additions: (16) dittography, or repetition from immediate context; (17) insertion of interlinear or marginal notes or glosses; (18) conflated readings; (19) additions due to influence of kindred writings.

The Renaissance stimulated the production of copies and of new works in literature, history, and science. Florence and Venice became centres of the manuscript trade. Filippo Vespasiano, of Florence, had a staff of nearly fifty scribes at one time and had agents abroad to purchase and sell manuscripts. Matthias Corvinus, of Prague, employed scribes to make copies of works in the libraries of Florence, Venice, and Rome. Venice, especially after the fall of Constantinople, became the world-centre of the manuscript trade. Its dealers (among whom Galeotti was the most famous) bought and sold large quantities of Greek manuscripts brought from Constantinople by the scholars who fled before the Turkish conquerors (cf. Brown [1520]). On the other hand, the Moors had, as early as the tenth century, made Cordova a centre of trade for Arabic and, later, Hebrew manuscripts (cf. *Jewish Encyclopædia*). In Switzerland the book-trade was particularly active at Constance and Basle during the church councils of the fifteenth century (cf. Lehmann [1611]). At Paris the manuscript trade was so well intrenched that it seriously delayed the introduction of printing. There were "stationers" at Oxford and London in the fourteenth century, and the organization of the Stationers' guild dates from 1403. (Cf. Putnam [1614].)

The book-trade flourished anew with the invention of printing. The earliest printers printed from manuscript copies and sold their own products. To overcome the bad effects of over-production, they soon developed a system of exchange with other printers. This quickly led to co-operative work between several printers (cf. Winship [1573]). Koberger and his flourishing business have already been mentioned, as well as the travels of Schoeffer to Paris and of Henri Estienne [1608.3] to Frankfurt, to sell their publications. Vérard, in Paris, also was perhaps more publisher than printer.

Koberger in Germany, Froben at Basle, Aldus in Italy, Wynken de Worde in England, the Estiennes in France, and the Plantin family in the Netherlands were the great publishing-houses of the fifteenth and sixteenth centuries. The troubled seventeenth century made both printing and bookselling precarious, and led to the separation of printing and publishing. In the comparatively quiet Netherlands, the Elzevir and Plantin families flourished, but they are exceptions which prove the general rule to the contrary.

In the eighteenth century it was not infrequent for a group of booksellers jointly to engage the services of an author; but the present organization of the book-trade in distinct special branches (printing, publishing, selling) dates from the nineteenth century. We have as yet no complete history of publishing to date, but a number of the great publishing firms (Longmans, Constable, Oxford Press, and, in America, Dutton, Harpers, Scribners, Stokes, etc.) have published their own histories within the last few years. (Cf. also occasional historical articles in *Publishers' Weekly* [1198], *Literary Digest*, *International Book Review* [1618], etc.)

In addition to the ordinary and obvious "stationary" bookshops, we have to note two other important methods of book distribution—book fairs and "colportage." The book fair was especially prominent in Germany. Starting at Frankfurt, it soon shifted to Leipsic, where it still flourishes. Henri Estienne [1608.3], who visited the Frankfurt fair of 1541, was most enthusiastic over it as a means of gathering together publishers, scholars, authors, and book-buyers. The catalogues issued at these fairs were the beginning of our systematic trade bibliography (cf. chap. 10). They made Leipsic the book-centre of Germany, and stimulated the formation of the Union of German Book Dealers. This association has made the German book-trade the most efficient and highly organized in the world.

A very active though usually unnoticed trade has been carried on, almost since the invention of printing, by the peddler or itinerant bookseller. His wares were usually cheap books, almanacs, religious works, and other books of a very popular character. (Cf. Nisard[1071.8].) He was the forerunner of the news-stand and the cheap-book department of the department store or mail-order house, of the "Quai" in Paris, and similar book-stalls in other European cities (*Why not* [in New York] was suggested last year in the columns of *Publishers' Weekly*). The "colporteur's" services were often enlisted by religious societies and other propagandists. He peddled Puritan and royalist and Catholic tracts in the seventeenth century. He distributed Bibles and religious tracts in the nineteenth. George Borrow's *Bible in Spain* is the result of such a trip. In America he is best known as the book-agent, who took orders for subscription books, particularly in the years between the Civil War and 1900. Dryden, Pope, and the doughty Doctor Johnson are a few notable examples of authors who have acted as advance subscription agents for their own books; and Mark Twain's connection with the Charles L. Webster Co. and the American Publishing Co., of Hartford, is typical of a point of view widely held in this country in the third quarter of the nineteenth century.

LITERARY PATRONAGE

The traditional bard "sang for his supper," and throughout antiquity, the Middle Ages, and, for that matter, throughout all time, the expectations of authors have been modest. Ancient and mediæval authors wrote to please themselves, for educational purposes, or in the hope of gifts or official prefer-ment from literary patrons or influential public men. Only lawyers and, occasionally, impresarios could demand their fees.

We quote a few of Holzknecht's[1610] conclusions regarding the Middle Ages: "The courts of the Norman kings, for example, fostered romances for amusement, and chronicles for political purposes primarily. . . . There is one school of poets . . . whose existence can be traced definitely to patronage [of James I of Scotland], the school of Scottish Chaucerians . . . many lives of saints . . . were composed for devout patrons . . . the troubadour was in most cases a patronized poet. . . . Besides influencing the author's choice of subject, the patron doubtless influenced the author's style and diction."

Further: "Evidence shows that in no case did the early printers enter upon their new adventure without good and able patronage. Gutenberg . . . seems to have been able to interest moneyful folk in his enterprise . . . Colard Mansion was munificently patronized in his early career . . . Lodovico Sforza encouraged the new art in Milan, Lodovico Gonzaga patronized a press in Mantua, Aldus Manutius in Venice received patronage from many hands . . . Caxton likewise was patronized amply . . . and we have a complete list of patrons."

In the later history of printing we have had occasion to refer to literary patronage, e. g., in the cases of the Estiennes and the Plantins, and there has been an unbroken succession of royal and government printers in many countries. Private subsidies and private presses, book clubs, learned societies, and educational endowments are some of our contemporary Mæcenases; and both authors and readers must gratefully hope for their continuance and increase. For Unwin's[85] dictum, "It is improbable that any really promising manuscript would fail to find a publisher in the long run, for the competition to detect any signs of genius is far too great," does not yet hold good for the research student, whose genius does not always express itself on such topics or in such style and brevity that even the most liberal but businesslike publisher can afford to carry its product on his list.

COPYRIGHT

Ancient law gave no protection to literary property. That the first edition might be made to yield the author some reward is evidenced in Martial. But once the book was out, any one could copy it, and could even pass it off for his own unless restrained by the public opinion of the literary circle. (Cf. Birt [1607], Putnam [1613], etc.)

The beginnings of the modern institution of copyright lay, not in any recognition of authors' rights, but in monopolies granted in the fifteenth century to printers or to court favorites who could farm out the grant to some printer (DeWolf [1608]). At the period when printing was invented, it was a rather common practice for a civil official to grant monopolies for specific lines of trade or industry to an individual, or to charter a trade guild for that purpose. It was, therefore, quite easy to extend the same privilege to printers at Venice. John of Speier was granted a monopoly of the printing business for five years (1469). Aldus Manutius had the exclusive right to print Greek and a similar right to the sole use of his italic type. In 1486 Marc' Antonio Sabellico, of Venice, was granted an author's copyright for his *Decades rerum venetarum*. During the period of the Reformation and Counter-Reformation, the Church of Rome was active both in censorship and in granting rights to print. (Cf. Brown [1520].)

The royal printers of the kings of France (e. g., the Estiennes) enjoyed exclusive rights in different lines or subjects. We have mentioned Plantin's monopoly for the service-books approved for use in the Spanish churches. In England the charter of the Stationers' Company (1556) "forbids any person not a member of the company from printing any book at all" (DeWolf). The right of copyright, however, soon reverted in large measure to the Crown. (Cf. also Plomer [1559].)

The author's right was first recognized in England, in a copyright act of 1709. "As a rule, however, authors continued to sell their work outright to the publishers, and in the eighteenth century the professional writer was to a great extent the employee of the bookseller-publisher" (Aldis [1512]). The U. S. Constitution provided for copyright legislation, and no less than ten copyright laws were enacted from 1790 to 1909, gradually extending the definition of literary and artistic property, of the authors entitled to copyright protection, of the amount and duration of protection, etc. Other countries have likewise gone their more or less independent ways. The first French law (aside from special decrees) dates from 1793; the first general German law from 1837.

Copyright was obviously effective only within the limits of the state granting it. "Piracies" (the printing of unauthorized editions) were the rule. The early printers suffered from wholesale unauthorized copying and imitation of the books they printed. The Giunta Press copied the Aldine editions. The printers of Lyons copied both. The Elzevirs did the same, in wholesale fashion, with their contemporaries, while rival houses copied the Elzevirs, even to the design of their types and title-pages. By this time authors had awakened to the value of literary rights and began to bargain with publishers, but the issue of unauthorized editions has continued down to our own day. We find Dickens, Thackeray, and Kipling complaining of the unauthorized editions of their works and Mark Twain vigorously attacking an English pirated edition of some of his earlier sketches.

International copyright depended on international benefit coming from it. This in turn required close literary relations between the countries concerned. The growth of literature in the various languages and the disuse of Latin as an international language weakened these relations, while the lessening political relations of church and state weakened any attempt at clerical censorship or copyright.

In 1887, chiefly through the efforts of the French Association of Authors and Artists, an international copyright convention was held at Berne. The "Convention," or international copyright agreement, adopted at this meeting was signed by practically all civilized countries, excepting Holland, Russia, and the United States. Later international conventions, modifying the first international code, were held in 1902 and 1909. The United States was represented at all these, but did not sign the agreement. They have, however, entered into treaty agreements with other countries; several Pan-American conventions have been held; and partial protection of the rights of foreign authors in the United States is provided in laws adopted in 1891, 1909, and 1922. (Cf., further, on this section De Wolf [1608], Putnam [1614.1], Bowker [1607.3].)

CENSORSHIP

The early licenses and privileges granted to printers were motivated not only by royal or ecclesiastical favor, but also by disfavor, censorship. Treasonable utterances and "lèse-majesté" have been punished from the beginning of time. Heretical religious books were burned by Constantine and the other Christian emperors of Rome. The practice was continued throughout the Middle Ages by church authorities and civil rulers. Savonarola burned the books of his opponents. The invention of printing made the multiplication of books easy and, in the eyes of the civil and religious authorities, increased the danger of books. Printers were hedged about with restrictions. Presses and books were confiscated and books burned. Printers and authors were imprisoned and sometimes executed. Printed lists of censored books were issued at Paris (1544), Louvain (1546), and Venice (1549). The first Roman *Index* of prohibited books appeared in 1559. It hampered though it did not stop printing. The reformers, against whom it was aimed, responded with no less drastic measures against Catholic works. (Cf. Brown [1520], Plomer [1549], Farrer [1060.9].)

In England, Worde was arraigned for selling heretical books, Wyclif's ashes were scattered. Tyndale was burned in Belgium. The Stuarts and Cromwell rigorously suppressed authors and writings opposing church and state in their changing phases. The Stationers' Company had for one of its objects the suppression of books prejudicial to church and state. French publishing suffered severely from censorship up to the days of the French Revolution, when a decree of the National Assembly virtually freed the press. In America, English practices were followed; the royalist governor Berkeley, of Virginia, devoutly thanked God that there were no printing-presses in his province, and the New England Puritans encouraged or muzzled their presses as occasion prompted. James Franklin, brother of Benjamin was a sufferer from later royal censorship.

Clerical censorship still exists in the official "approved" or "imprimatur" (prefixed to books of theological or ecclesiastical character approved by the Catholic Church) and in the official *Index*. In both cases the character of the censorship is radically different from that of earlier times (cf. *Catholic Encyclopædia*, s. v. "Censorship").

Governmental attempts at religious censorship have occurred recently in connection with the "fundamentalist" controversy, the Scopes trial, and the legislative bills (and a few enactments) in several States, against the teaching of the theory of evolution. And Chicago has been only the most prominent, not the first, seat of agitation for "one hundred per cent Americanism" in text-books of history. There have been many rumors of stringent political and religious (or anti-religious) censorship in Bolshevist Russia. An active discussion over the censorship of immoral books and papers is in progress in the United States at present, and several well-known periodicals have at times been barred from use of the mails (consult the *Readers' Guide* for numerous references on the contemporary situation, and Anthony Comstock's *Traps for the Young* for an account of an earlier crusade). St. John Hornby complains (London *Times Literary Supplement*, February 10, 1927) that some Kansas post-office authorities destroyed a folio edition of Boccaccio, regardless of the facts that the text was in Italian and that the book was one of the famous edition of only 105 copies from the Ashendene Press! Practically all governments retain the right to censor, suppress, or confiscate publications of an immoral or insurrectionary character; but the exercise of the right works in various and curious ways.

CHAPTER XV

LIBRARY HISTORY AND RESOURCES

The history of libraries and their resources cannot be adequately discussed in any brief treatment; and our limited space permits here only the mention of a few outstanding points of library history and the briefest practicable mention of a few libraries notable for their past or present influence on scholarship. From one angle, library history is inseparably connected with the history of intellectual and social progress. In this phase it cannot be separated from its historical and social environment, and a discussion with this emphasis would be a running commentary on universal history. From a second angle, the resources of a library and the history of the library are closely related. The conditions and reasons connected with the possession of the books and other material in the library go far toward explaining the conditions of its use and its limitations for research work. In any library which is not primarily a museum resources change so rapidly that no statement about them should be considered more than momentarily accurate. The general articles on libraries in general encyclopædias like the *Americana*, the *Britannica*, Meyer, Larousse, etc., give salient points in library history and generally accurate information regarding their historic resources. There is a rather large number of general historical treatments, most of which are inadequate, but helpful on specific points. Lipsius [1632], Savage [1640], and Hessel [1628] (1925, most useful for its bibliography) are examples of early and recent types.

The older type of manual of library administration and bibliographical guide usually included at least brief sketches of library history, e. g., Graesel [16], Greenwood [1627], Edwards [1623], Spofford [31], etc. The modern administrative manual tends to discuss current theory and practice rather than historic incident or precedent.

The best general sources for current library statistics are the *Minerva Jahrbuch*[1173] (on which the statistics in this chapter are chiefly based—but cf. also Sparn[1640.7-.8]), the *Index generalis*[1169], the *American Library Directory*[1619.1], the valuable but tardy and irregularly appearing *Statistics of Public, Society and School Libraries* in the *Bulletin* of the United States Bureau of Education[450], Johnston and Mudge's[1629], and Richardson's[1639] lists of special collections. These may be supplemented, for the historical background, by the many handbooks or treatises on the history and resources of libraries of a given country, region, or period. Jewett[1628.7], the "1876 report" of the United States Bureau of Education[1641.1], Fletcher[1623.8], Edwards[1623], Boyd[1621], Gardthausen[1624], Richardson[1636-38], and Savage[1639.9] are typical examples of this kind. The library and bibliographical periodicals (see chap. 11) usually include news-notes and historical and descriptive articles on notable collections and notable additions to libraries; and Cannons's *Bibliography*[1433] includes references to historical as well as to administrative material. In lamentably frequent instances the student—and even the faculty member—is not familiar with the handbook or the reports of his own library.

The total production of printed books is variously estimated at from ten to thirty million volumes. No estimate of the total number of books produced before printing—cuneiform tablets or manuscripts—has been made. Madan[1480] lists fifty-five public libraries containing an aggregate of about a million manuscripts. If the unestimated collections and music, maps, prints, and other printed matter are considered, the thirty-million estimate is too small. Even the statistics of the number of printed books issued are unreliable. What have remained are in existence because they have been collected in libraries of one kind or other.

The form and purpose of libraries have changed as civilization has advanced. In their earliest forms they seem to have been archives or collections of records in palace or temple. Layard uncovered a rather elaborate library, in the palace of Assurbanipal at Nineveh (669–625 B. C.) apparently with the clay tablets on many subjects arranged by classes, a rudi mentary catalogue, a code of rules for use, and a librarian (Clark[1622]). The University of Pennsylvania has uncovered at Nippur what seems to be a temple library of the time of Sargon (about 3000 B. C.), as well as considerable archives of business records on clay tablets.

The records of Egyptian libraries are scanty and uncertain. Richardson[1638] thinks a reference of 2750 B. C. to "Scribe of the king's records" indicates a librarian. He also cites a reference of 1788 B. C. to libraries. An archive of about 250 clay tablets, containing correspondence with Babylonia, Syria, the Hittites, and others were found at Tel-el-Amarna in Egypt. There are several references in classical authorities to a great library with the inscription "The dispensary of the soul," founded by Rameses II (1300–1236 B. C.). This library—like most of the remains of Egyptian literature and like the later collections in temples and palaces—was doubtless composed of papyri. So far as we know, none of these are extant, but many valuable papyrus rolls and fragments have been dug up from ruins and waste-heaps, and from tombs where they were deposited for the use of the spirits of the dead. The dry atmosphere has preserved these, and further important discoveries are probable.

Libraries, in the modern sense, as opposed to archives, seem to have begun with the Greeks. There is mention of royal libraries of Polycrates of Samos and Peisistratus of Athens in the sixth century B. C. The poet Euripides is said to have formed a small private library, and there are specific accounts of the library of Aristotle, which he willed to his pupil Theophrastus, and which was finally taken from Athens to Rome by Sulla (83 B. C.). The Alexandrian libraries, the most famous of antiquity, were of Greek origin. The first Ptolemies founded the Serapeum and the Brucheum (third century B. C.). Some estimates give them 900,000 rolls of papyrus, at their greatest size. They suffered from war and fire; the Brucheum did not survive the invasion of Aurelian (272 A. D.). The Serapeum was ordered destroyed by Theodosius (391 A. D.), because he considered it a heathen collection injurious to Christianity, but there is also the tradition that the Caliph

Omar in 638 fed the fires for 4,000 baths for six months, with its treasures. (Cf. Savage [1640].)

King Eumenes of Pergamum (195–159 B. C.) founded a library in a separate library building with wooden bracket shelves. It is said to have reached the number of 200,000 rolls, which Marc Antony sent to Alexandria as a present to Cleopatra. It was in this library that the use of parchment as writing-material is alleged to have begun.

The Romans copied the Greeks in libraries as in other matters. Sulla, Lucullus, and Marc Antony appropriated libraries as spoils of war. Julius Cæsar planned a public library, but did not live to accomplish the project. Asinius Pollio and Augustus founded public libraries in Rome at nearly the same time. Trajan and his successors continued the work, so that by the time of Hadrian (second century) there were twenty-nine public libraries in Rome and about as many elsewhere, like that founded by Pliny in his native town Comum. Private libraries increased with the growth of private reading. By the time of Augustus it was a point of etiquette for every man of means to have a collection of books in his house. By the middle of the first century A. D., the rage for reading was so great that books were always at hand, at the baths, at table, on journeys, and even as a means of inducing sleep. (Adapted from Weise, *Schrift- und Buchwesen in alter und neuer Zeit* [1508.2].) Some of these collections were very large, like that of Serenus Sammonicus, tutor of the Emperor Gordian, which is said to have numbered 62,000 rolls. Roman libraries followed the Greek, in their plan. They seem to have had regular librarians (procurators), systematic shelf arrangement, and catalogues. The later libraries must have provided for both rolls and codices. (Cf. Boyd [1621].)

Most of these private and public libraries were destroyed by the numerous fires which scourged Rome, by the removal of the capital of the empire to Constantinople, and by the sacking of Rome by the Goths and Vandals. In one case, fire preserved a library. At Herculaneum a private library of 1,756 rolls was preserved, in charred and fragmentary condition, by the lava from Vesuvius. Hopes are held that others may be discovered in the excavations at Herculaneum, which have very recently been renewed by the Italian Government.

At Constantinople, or Byzantium, Constantine (early fourth century) collected a library of 6,900 rolls, which had increased to over 100,000 by the time of Theodosius. Constantinople and the monasteries on the peninsula of Mount Athos became the centre of the collections of books, especially Greek. In spite of fires and the pillage of Constantinople by Christian crusaders and Moslem Turks, many of these books survived. Twenty of the Mount Athos monasteries are still in existence, with their libraries in various stages of survival. Greek scholars fleeing from the fall of Constantinople in 1453 carried many manuscripts to Italy. The Turks sold others to fifteenth- and sixteenth-century book-collectors and booksellers. All of these played a great part in the Renaissance and the spread of its ideals.

The Arabs not only preserved but spread Greek civilization. They had libraries—from Bagdad on the east to Spain on the west, where they had seventy. That of the Omayads at Cordova had 600,000 volumes, in the tenth century. The chief service of the Arabs was in their preservation and production of scientific books, Greek, Arabic, and Hebrew. Under their patronage the Moorish and Jewish scholars made the Levant and Spain the scientific circles of mediæval times. Mediæval knowledge of Aristotle's *Organon*, which affected all European science and thought, came through an Arabic translation. The large number of scientific treatises printed in the fifteenth and sixteenth centuries, when Spanish influence was strong, indicates the scientific debt to the Moors.

The mediæval Christian libraries, on the contrary, were chiefly interested in religious works, though some of the Greek and Roman literary classics were preserved, especially such as were frequently mentioned in the writings of the early Christian Fathers. As Christianity became the official religion of Europe, more tolerance toward pagan writers was shown, and the classics were copied and studied. Many pagan works were unintentionally preserved as palimpsests. Many of these are now being reproduced and published. The early Renaissance scholars and collectors were chiefly interested in literature.

As the church became prominent in temporal as well as spiritual matters, churches and monasteries, in addition to being centres of religious influence, became centres of secular learning, and libraries were attached to them. They began early in the East, e. g., at Jerusalem about 250, at Cæsarea in 309, and at Hippo, the diocese of St. Augustine, about 430. The library at Cæsarea grew to 30,000 volumes, under Eusebius.

The hermit monks of Egypt, in the third and fourth centuries, had libraries with simple rules for lending and housing. Some of these (e. g., St. Macarius, founded about 380) still exist, though in sadly damaged state.

Among the famous Western monastic libraries should be mentioned Monte Cassino in Italy (still surviving); Bobbio, founded by Irish missionaries under St. Columba; Tours, Cluny, and Clairvaux in France; Canterbury and Peterborough in England; Fulda in Germany; St. Gall in Switzerland. Library organization was considerably developed. St. Benedict instituted compulsory library hours (Putnam[1614]). The Augustinians had codes for binding and repair, cataloguing and shelving. The Carthusians were the first to lend books outside the monastery.

Mediæval library catalogues are fairly numerous (cf. Lehmann[1631.3]). The oldest known is that of the Monastery of Fontanelle in Normandy (eighth century). More than six hundred of these mediæval catalogues are preserved in the Staatsbibliothek at Munich. During the later Middle Ages monastic learning and monastic libraries declined. The monks did not encourage the growth of universities and university libraries nor the Renaissance which followed the secularization of learning. On the contrary, they were active opponents.

The Reformation hastened the decline of the monastic libraries and the growth of university libraries and of private collections of the ruling nobility. Under Henry VIII, the English monastic collections were largely destroyed, though some volumes were sent to the king's library, and a few collections survived in part. Most of the German monastic collections during Luther's Reformation had already met the same fate. During the French Revolution the religious libraries were dispersed among the municipal libraries. In the strife between king and pope in Italy, the same disposition was made of most of the monastic libraries. For the most part, the university libraries neither grew rapidly nor profited from the fate of the monastery collections, nor were many university collections notable until the eighteenth and nineteenth centuries. For example, the University of Paris in 1292 had only about 1,000 volumes, and Cambridge had only 122 volumes in its University Library in 1424–40. Duke Humphrey of Gloucester received fulsome praise for a gift of probably 130 volumes to Oxford University in 1435 and 1439 (Savage [1639.9]).

Private collections, suspended for centuries after the fall of Rome, were revived in the thirteenth century. Naturally, these books were expensive, and the collections were usually founded by rulers, to become the nuclei of later national or state libraries, or by ecclesiastics. For example, as early as the ninth century, Charlemagne is said to have had a library, collected under the influence of Alcuin, and Richard de Fournivall (1201–60) collected a library which later went to the Sorbonne—said to be the first public library since Roman times. Richard de Bury was an English collector of note.

Italy had the most notable private collections. Among them were that of Poggio Bracciolini (1380–1459) and those of Petrarch and Boccaccio, which were left to St. Mark's in Venice and Santo Spirito in Florence, to be used for public libraries. Filippo Vespasiano da Bisticci collected and published books for himself and other collectors, among them Pope Nicholas V and the Medici. He vigorously opposed the introduction of printing and issued many of the beautiful manuscripts which are now in the Laurentian Library at Florence (Orcutt [1549]). Another great collector was King Matthias Corvinus (1443–90) of Hungary. His library of 50,000 manuscripts at Buda was largely destroyed by the Turks in their invasion of Hungary (1526–29), though a few are still extant, mostly in the National Library at Vienna.

After the invention of printing, libraries increased rapidly in number and size. The sixteenth century may, therefore, in a sense be considered the beginning of modern libraries. They have developed chiefly along three lines: private or bibliophile; university and reference, usually with the professed purpose of promoting scholarship or science; and free public libraries, in which recreation, general culture, and vocational information are usually the professed aims. The types overlap, sometimes in the same institution, since the private collection may be for scholarly purposes or the bibliophile's private collection may become part of a public or university library. The public library, especially if in a large city or well supplied with funds, often takes all library activities as its province.

The oldest modern library is that of the Vatican. Begun in the fourth century by Pope Damasus as a church archive, it has been constantly enriched by gifts and bequests of clerics, rulers, and laymen. It is especially rich in manuscripts and other original sources. It received its first great development under Pope Nicholas V, former librarian to Cosimo de Medici. It has always been a great source for scholarly research, and under the present Pope, who as Cardinal Ratti was librarian of the Ambrosian library in Milan, its treasures are becoming increasingly available to scholars. Its reorganization, along the lines of modern library methods, is to be begun in 1928.

The Laurentian Library (Mediceo-Laurenziana) of Florence was originally the libraries of three of the Medici—Cosimo, Lorenzo, and Pietro. It suffered in the French invasions and the Italian civil wars. Its collection is notable for its books and manuscripts of historic value rather than for its size, as it contains only about 20,000 printed volumes and about 10,000 manuscripts. Another library due to the Medici is the Biblioteca Marciana in Venice, founded by Cosimo de Medici. It now has about 320,000 volumes and some 12,000 manuscripts. The Ambrosian Library at Milan, originally a private collection, now has about 400,000 volumes. Among its 10,000 manuscript volumes are many of the most famous in the world.

Italy has several national libraries—a condition reflecting the former lack of national unity. The Biblioteca Nazionale Centrale at Florence, founded in 1714 by the will of the noted and eccentric librarian, Magliabecchi, has about 700,000 volumes, over 22,000 manuscripts, more than 1,000,000 pamphlets, and much other material. It owns about 3,600 incunabula. Its rapid growth is due partly to its copyright privilege. The central national library at Rome, the Biblioteca Vittorio Emmanuele, was founded largely with books from suppressed monasteries, a fact which explains its rich collection in theology and its numerous incunabula and manuscripts. There are other royal libraries at Naples (Biblioteca Borbonica), Palermo, and Turin (formerly the library of the university). The university libraries, notably at Bologna and Padua, and many of the former libraries of the rulers of petty Italian states are rich in older books and manuscripts—the direct heritage of the Renaissance.

In France, there were early attempts to form private libraries by several of the early kings: Pepin, Charlemagne, Louis the Pious, and St. Louis (1226–70) (cf. Koch, in *Library Journal*, May–June, 1914). The last-named seems to have borrowed from his experiences as a crusader the idea of forming a library open to scholars and priests, in addition to the privileges he granted others in using his private library. Unfortunately, he died before completing his plan, and his books were scattered among several monasteries (Cim[8]). Charles V, in 1367 or 1368, founded a library of 973 volumes, in a tower of the Louvre. This collection was sold in 1429 to the Duke of Bedford and sent to England. The succeeding kings made rather unsystematic attempts to form a royal library in various places. Francis I, who had a genuine interest in books, founded a royal library at Fontainebleau, which was later moved to Paris and is now the Bibliothèque Nationale. Its rapid growth began under Colbert (1661–97) in the reign of Louis XIV. The revolutionary republicans and Napoleon I poured into it books from forfeited libraries and those captured in war. It is now (1927) perhaps the largest library in the world, containing about 4,000,000 books and 500,000 periodicals, 125,000 manuscripts, and 300,000 prints.

The Mazarine Library, founded by Cardinal Mazarin, was for a considerable time the real library centre of France. In October, 1643, it was open for public use under the famous scholar-librarian Gabriel Naudé. It was seized and sold under the Fronde, but Mazarin attempted, with considerable success, to re-collect it. It is still much used by scholars, and includes, among its 250,000 volumes and 1,900 incunabula, many famous rarities, among them the "Mazarin Bible." The Bibliothèque de l'Arsenal, with about 725,000 volumes, has the most complete collection in existence of French romances, and early drama and poetry. The Bibliothèque Sainte-Geneviève and the Bibliothèque de la Sorbonne (university) are favorite resorts of scholars. The latter is rich in historical source material, law and the medical sciences, and theses. Outside of Paris, practically every department, town, and university has its library, whether of reference and antiquarian value or for popular use or circulation.

In Spain the library of the Escorial, though having only about 35,000 volumes, is famous for its 4,600 manuscripts and other rarities. The largest Spanish library is the Biblioteca Nacional at Madrid, of about 1,135,000 volumes. It is rich in early travel and voyages and in Spanish history—a rich mine, only in part utilized by modern scholars.

In Germany, at the period of the Reformation, under the influence of Luther and Melanchthon, the university libraries began to take the place of the mediæval monastic libraries. The library at Altenburg was founded in 1529. Municipal libraries were established in Brunswick and Danzig in 1413, and in Hamburg in 1469. At the suppression of the monasteries many of their libraries went to municipal foundations or to universities, as, for example, Wittenberg, Halle, and Marburg. The largest German library, the Prussian State Library (Preussische Staatsbibliothek), formerly the Royal Imperial Library, at Berlin began in this way, as the electoral library of Brandenburg. Frederick the Great made great additions to it. It has had copyright privileges since 1699. Its collection amounts to about 2,000,000 volumes, besides 6,000 incunabula, 55,000 manuscripts, and 400,000 maps. It is a scholar's library rather than a collection of book rarities. It is strong in science as well as in art and literature (Krüss [1619]).

The Bavarian State Library at Munich (formerly the Hof- und Staatsbibliothek, now the Bayerische Staatsbibliothek) is second only to the Prussian, with about 1,500,000 volumes, of which 16,000 are incunabula. It is admirably conducted and is an excellent working library. There are many other excellent municipal and university libraries—for example, Strassburg, Dresden, Göttingen, Heidelberg, Leipsic, and Tübingen, ranging from 300,000 to about 1,000,000 volumes.

There are also many special libraries of scientific and literary associations. Excellent systems of interlibrary loans and co-operative or union catalogues make the German libraries peculiarly available to scholars throughout Europe (Krüss [1619]).

The largest library in the former Austro-Hungarian Empire is the Nationalbibliothek at Vienna, founded in 1440 and including more than 1,000,000 books, besides the large collections of early printed books, manuscripts, papyri, and many other historic or rare items and collections. The Vienna University library is a close second in size. It is strong in the natural sciences. Buda-Pesth, Cracow, Czernowitz, Graz, Lemberg, Prague, and many other places have libraries of from 200,000 to 1,000,000 volumes; some of these are now national instead of provincial libraries, and all are growing in size and importance.

The largest Swiss libraries are at Basle, Berne, Zurich, and Geneva. There are many special scientific and technical libraries.

In Belgium, the Bibliothèque Royale (Brussels) was founded in 1827, by uniting the combined private royal collections and the libraries of suppressed Jesuit communities. Ghent and Louvain (the latter still in process of rehabilitation from the war) are the leading university libraries. There are several notable special libraries, e. g., that of the Bollandists (theology), Plantin-Moretus (printing), and the Bibliothèque Collective Internationale (society proceedings and theses).

The Royal Library at The Hague is the largest Dutch library, with about 2,000,000 volumes. Amsterdam and Leyden have the most important university libraries, of 800,000 and 500,000 volumes respectively.

The complex political history of the Scandinavian countries has considerably affected their library development. Each country has good national, university, and popular libraries. The Royal Library at Copenhagen is the oldest and largest (900,000 volumes). The Royal Library at Stockholm (460,000 volumes) and the university libraries at Upsala (600,000 volumes) and Lund (340,000 volumes) are the leading Swedish libraries. In Norway, the library of the University at Oslô (about 685,000 volumes) is the most important.

Our information about the libraries of the Union of Socialist Soviet Republics is somewhat uncertain. The former Imperial Library has become the State Public Library (4,260,000 volumes). The libraries of the Academy of Sciences (3,500,000 volumes), the university (600,000 volumes), and various institutions in Leningrad devoted to special branches of science are worthy of note. In Moscow, the largest collection is that of the All-Union Lenin Memorial Library (formerly the book collection of the Rumiantzov Museum) which is supposed to contain some 3,710,000 volumes. The university library is one of the oldest and most important collections, and the Historical Museum and the Polytechnic Museum may be taken as typical of numerous other special collections. In Kiev, the National Library of the Ukraine was founded in 1918, and already numbers over 1,000,000 volumes. Here again the Academy of Sciences and the university have important collections. Since some of these are the results of consolidation, and much duplication and inconsistency in statistics are inevitable, it is likely that later statistics will show some differences. It must, however, be remembered that for many years there have been numerous large libraries, chiefly of Russian books and little known outside their own country. (Cf., further, Haffkin-Hamburger [1619].)

In England, as in Germany, mediæval libraries were largely in the monasteries, and, in the Reformation, their influence passed to the Royal Library and the universities, and their collections were dispersed and mostly lost. The college libraries of Oxford and Cambridge seem to have preceded the founding of general university libraries open to all. The Oxford University Library was started in 1327, though it was not firmly established until early in the fifteenth century (Savage [1639.9]). Duke Humphrey of Gloucester, from 1413 to 1449, and Sir Thomas Bodley, from 1598 to 1612, were the chief early benefactors. The present university library, the Bodleian, is named after the latter. It is primarily devoted to study and research, and "if both size and importance are taken into consideration, the Bodleian may be considered the most important university library in the world and the greatest library not directly aided by the state" (Koch, in *Library Journal*, Oct.–Nov., 1914). Cambridge University Library stands second to the Bodleian in number of volumes. The separate college libraries at both universities have many rarities.

"In many respects the British Museum is the most important library in the world; certainly among English-speaking people it occupies a unique position" (Koch, in *Library Journal*, Sept., 1913). Though its official founding dates only from 1753, it is second only to the Bibliothèque Nationale in size, unless present statistics of the Lenin Memorial Library indicate that it has become third. Many notable private collections have been added to it by gift, bequest, or purchase. It receives about 60,000 volumes annually by copyright privilege. It is strong in every department—manuscripts, books, and prints, on every subject of importance and in almost every language. It is perhaps the greatest single centre of productive English scholarship.

The John Rylands Library of Manchester (opened in 1899) is a consolidation of several older collections, notably that of the second Earl Spencer, one of the most notable collections of first editions ever made. It has about 300,000 volumes, many of great rarity and historic interest.

The libraries of London University, the University of Edinburgh, Glasgow, St. Andrews, and Trinity College (Dublin); the London Library; the National Art Library; the Patent Office Library (famous for its collections of patent specifications and technical literature); the Royal Irish Academy (with one of the best collections extant on Ireland); the public libraries of Glasgow, Birmingham, and Manchester—these are only a few of the scores of British and Irish libraries of note (cf. Baker [1620]).

Library history in the present United States is said to have begun at Henrico College, Jamestown, in 1621. This library was completely destroyed in an Indian massacre the next year. The oldest still existing is the Harvard College Library, founded 1636. In the eighteenth century appear the university libraries of Yale (1701), Princeton (1755), Pennsylvania (1755), Columbia (1757), Brown (1767), and Dartmouth (1770).

The chief contribution of the United States is the development of free public libraries for popular rather than scholarly use. These, in turn, are in direct descent from the club and society libraries, of which Benjamin Franklin's Library Company of Philadelphia (founded 1731 and still active) was the first. Open at first only to subscribers, they greatly increased during the two or three decades preceding the Civil War. Most of them became merged with libraries open to the general public, though there are still many in active operation. The tax-supported library, probably beginning at Peterboro, N. H., in 1833 (though this has been disputed, and Burlington, N. J., has a rival claim), and the public library supported by gift or endowment have shown the most spectacular development in the latter part of the nineteenth century and up to the present. In number of public libraries, in increase in number of volumes, in use and in perfection of administrative methods, the United States has been and is a recognized leader. The purpose of American public libraries was popular education rather than erudition—they inherited no rarities or historical material, as was the case with most European libraries. Nevertheless, as popular education spread, special, technical, and scientific libraries were founded. Attendance at colleges and universities increased, and college and university libraries grew in number, size, and importance.

The Library of Congress is fourth in the world in size (nearly 3,500,000 volumes) and, for Americans, first in importance. The New York Public Library (over 3,000,000 volumes) has a great reference collection, as well as a circulating system of 46 branches and nearly 400 other distributing agencies. It is the largest public-library system in the world. The public libraries of Chicago, Cleveland, and Boston also have over

1,000,000 volumes each, while those of Brooklyn and Detroit have nearly 1,000,000 each (though many of these volumes are duplicate copies). There are ten college or university libraries of more than 500,000 volumes each. The John Carter Brown Library at Brown University, the William L. Clements Library at the University of Michigan, the John Crerar and Newberry libraries of Chicago, the J. Pierpont Morgan Library in New York, and the Henry E. Huntington Library at San Marino, California, are examples of privately-founded collections of scholarly character intended for public use. Though American libraries lack much of the source material for historical study which is fairly common in European libraries, they are rapidly developing collections of printed material which, especially in the fields of science and modern social development, rank well with those of any other country.

LIBRARY RESOURCES

The resources of a modern library are usually estimated on the basis of the number of volumes it includes. This is a very unsatisfactory basis. Libraries differ in the interpretation of statistics. Moreover, there is a difference in the values of manuscripts or other original sources, variant editions, and duplicate copies of the same edition. The subjects included in the library must also be considered. The library of a theological school and that of a college of medicine are not equally valuable to the same people. A public-library collection of 100,000 volumes, mostly duplicates and scattered among a dozen branches, will probably be of little use to a scholar or specialist. On the other hand, the specialist's library would be virtually useless as a means of popular mass education. One of the first steps in appraising the value of any library to any person is to obtain some idea of its adaptation to that person's needs.

We have already pointed out (chap. 2) the study of local library resources as one of the earliest steps in the prosecution of a piece of research work. But when, in the course of the work, it becomes necessary to supplement these local resources

—as will happen even in the best-regulated libraries—by the resources of other libraries, the student—and the librarian—is often at a loss to know where to begin (cf. Bishop [5]). He may elect to question or visit the largest libraries—in this country, for example, the Library of Congress, Harvard, etc. —but we have already pointed out the dangers of overworking our few largest libraries in the matter of interlibrary loan. Two types of aids in the location of books are being developed, both in America and abroad:

(1) Union catalogues and individual printed catalogues and bulletins of large or special libraries (cf. chap. 11), within the limits of their present development, guide the student to the location of specific books which he seeks. The union card-catalogues (especially those of the Library of Congress and the International Institute of Bibliography) have been mentioned (chap. 11); but as yet the most useful are the printed union catalogues of special classes of material, the *Census* of incunabula [1515], the *Union List of Serials* [1151] (cf. similar foreign lists—chap. 11—and subject lists, e. g., of the periodicals indexed in *Chemical Abstracts*, the *Psychological Index*, etc.), the catalogues of archives, published in the annual reports of the American Historical Association, etc.

(2) The union catalogues give the most certain and exact information, but we cannot hope to have them complete and universal for many years to come. In the meantime, the descriptive lists of resources and special collections in libraries are approximate guides not only to a certain specific book but to exhaustive collections of perhaps valuable unlooked-for material on the subject of investigation. The beginning of these lists of special collections was made by Lane and Bolton (1892). Their work was the basis of Johnston and Mudge [1629] (1912), which, though out of date, is still useful. The A. L. A. *Library Survey* [988] includes a certain number of reports by different libraries of various types on their special collections. Richardson has just printed an extended title-a-line list of *Special Collections* [1639], which collects information from various sources, past and present. Baker's *Uses of Libraries* [1620] gives valuable information regarding British library resources. The American

Library Association Committee on Special Resources is engaged in assembling similar material.

Many other associations and societies have been actively engaged in similar enterprises during the past four or five years, e. g., the American Chemical Society, the Modern Language Association, the National Research Council, and the American Historical Association (whose *Guide to the Study of History* [99] is particularly noteworthy in this connection). Several individual scholars are listing works in special fields (e. g., Leisy's *Materials for Investigation in American Literature* [677]). The latest *American Library Directory* [1619.1] assembles information regarding American library resources and should become the current compendium of complete and up-to-date information in these matters.

The rapid growth of American university and reference libraries makes all these attempts tentative and incomplete. Every journal and every librarian's report (cf. Moody's *Index* [1633]) has new items to be assimilated. They do, however, indicate a movement toward making as available as possible to any serious student the library resources of the nation. Any worker in a special field must still test by visit and correspondence the resources and deficiencies of the various collections. In the interests of American scholarship, he is under obligation to report the results of his experience and investigation to some suitable person or committee, which can compile and make the information generally available.

We should mention here again, as a means of economy of time and travel, the use of the photostat (cf. chap. 7). Through it, material is made available which is considered too valuable to be risked in transportation or is, for other reasons, not readily loaned. Its cost is moderate; and the prints can be used as satisfactorily, in most cases, as the originals, and can also serve as permanent additions to the library of the scholar or institution which purchases them. We have recently availed ourselves of this service, for example, from the British Museum, Cambridge University, the Royal Library at Copenhagen, the Huntington Library, and several American university libraries.

Finally, we should remind the student that he will save much of his own time and of that of the library upon the resources of which he draws, if he will formulate his bibliographic needs with the utmost precision (full and correct name of author, exact title, date, edition, etc.). The means for doing this—the subject and general bibliographies which we have enumerated or others of their types—should be accessible in every library where research work is undertaken.

BIBLIOGRAPHICAL APPENDIX

CHAPTER I

GENERAL AND INTRODUCTORY WORKS

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CHAPTER IV

A. HISTORY

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322. ——. Bibliographie des Socialismus und Communismus. Jena,Fischer,1893–1909.3v.

323. Thompson,Olive. Guide to readings in civic education. Berkeley,1924. Rev.ed. (Univ.of Cal.*Syllabus ser*.157.)

324. U.S.Tariff Commission. Colonial tariff policies. Wash.,1922.

[325. Wales. National library,Aberystwith. Bibliography of Robert Owen, the socialist. Aberystwyth,1925.2d ed. By W.Williams.]

326. Webb,Sidney & Beatrice. History of trade unionism. Lond.,Longmans, 1911.New ed.

[327. Welt des sozialismus; eine Zusammenstellung der wichtigsten . . . Literatur. Lpz.,Deutsche Zentralstelle f.Volkstümliches Büchereiwesen,1927.]

328. Williams,Judith Blow. Guide to the printed materials for English social and economic history,1750–1850. N.Y.,Columbia univ.press,1926.2v.

329. Wolfstieg,August L.F. Bibliographie der freimaurerischen Literatur. Lpz.,Hiersemann,1923.3v.2d printing. Suppl.by B.Beyer,Lpz.,1926– .

330. Woodbury,Charles Jeptha Hill. Bibliography of the cotton manufacture. Waltham,Mass.,Barry,1909–10.2v.

331. Zimand,Savel. Modern social movements. N.Y.,Wilson,1921.

F. 2. SOCIAL SCIENCES (ECONOMICS AND SOCIOLOGY). PERIODICALS

332. American economic review. Camb.1911– . Continues *Bull.& Quarterly* of Amer.econ.assoc.

333. American journal of sociology. Chic.1895– .

334. American library in Paris. Reference service on international affairs. European economic and financial publications. Par.1926.

335. Bibliographical bulletin on international affairs. Par.1926– . Pub. of Research centre on internat.affairs and Internat.inst.of intellectual co-operation. French title:*Bull.bibl.*etc.

336. Bibliographie der Sozialwissenschaften. [Dresd.1906– .]

337. Economic history review. Lond.1927– . Pub.of Econ.hist.soc.

338. Economic journal. Lond.1891– . Pub.of Royal econ.soc.

339. Economica. Lond.[1921]– . Pub.of Lond.school of econ.& political science.

340. Finanz-Archiv. Stutt.1884– .

340.1. Index to labor periodicals. N.Y.,Rand school,1927– .

341. Insurance library association of Boston. Bulletin. [Bost.1909– .]

342. International labour review. Gen.1921– .

343. International railway congress association. Bulletin. [Brussels, 1896]– . Includes *Monthly bibl.of railways.*

344. Journal des économistes. Par.1842– .

[345. Journal of abstracts in the social sciences. Projected. Auspices of Soc.science research council. Related to international abstracts projected by Internat.inst.of intellectual co-operation.]

345.1. Nachschlagebuch der Nachschlagewerke für die Wirtschaftspraxis. Hamburg [1925–].

346. Public affairs information service. Bulletin. N.Y.[1914]– .

347. Revue d'économie politique. Par.1887– .

348. Riforma sociale. Tor.1894– .

349. Royal statistical society,London. Journal. Lond.1839– .

350. U.S.Dept.of labor. Monthly labor review. Wash.1915– .

351. Warnotte,Daniel. Sources bibliographiques de la documentation sociologique. (In Inst.Solvay.Inst.de sociologie. *Bull.mensuel* 1(1910)nos.1–2.)

G. POLITICS

(1. *Retrospective.*—2. *Periodicals*)

Cf. also other sections of chap. 4, *Government publications* (*chap.* 9 *B*), *also no.* 1435 (*no.* 6).

352. Block,Maurice. Dictionnaire de l'administration française. Par.,Berger-Levrault,1905.2v.5th ed.

353. Bogardus,Emory Stephen. Essentials of Americanization. Los Angeles, Univ.of Southern Cal.press,1920.Rev.ed.

354. Brooks,Robert Clarkson. Bibliography of municipal problems and city conditions. N.Y.,Reform club,1901.2d ed.

355. Buell,Raymond Leslie. International relations. N.Y.,Holt,c1925.

356. ——. Problems of the Pacific; a brief bibliography. Bost.[1925]. (World peace foundation. *Pamphlets*,v.8,no.1.)

357. Carnegie endowment for international peace. Publications . . . with a list of depository libraries. Wash.[1920].

358. ——. Division of intercourse & education. International relations clubs bibliography series. n.p.,1924– . Contents:—1. Martin,L. *Sel.of material on the new geography.*—2. Earle,E.M. *Problems of the Near East.*

359. Cyclopedia of American government, ed.by A.C.McLaughlin and A.B. Hart. N.Y.,Appleton,1914.3v.

360. Dareste de la Chavanne,François Rodolphe & Paul. Constitutions modernes; recueil. Par.,Challamel,1910.2v.3d ed.

361. Dodd,Walter Fairleigh. Modern constitutions. Chic.,Univ.press [1912]. 2v.2d printing.

362. Doré,Robert. Essai d'une bibliographie des congrès internationaux. Par., Champion,1923. Repr.from *Rev.des bibliothèques* 32(1922)p.389–444.

363. Dunning,William Archibald, & others. History of political theories. N.Y.,Macmillan,1902–24.4v.

364. Fauchille,Paul. Traité de droit international public. Par.,Bonfils,1921– .

365. Fish,Carl Russell. Introduction to the history of American diplomacy. Lond.,Macmillan,1919. (*Helps for students of hist.*19.)

366. Gerber,Adolph. Niccolò Macchiavelli; die Hansdchriften,Ausgaben und Übersetzungen. . . 16. und 17. Jahrhunderte. Gotha,Perthes,1912–13.3pt.&atlas.

367. Gettell,Raymond Garfield. Introduction to political science. Bost., Ginn,c1910.

368. Government handbooks. Yonkers,World book co.,1915– . Partial contents:—Krüger,F.K. German empire. 1915.—Brooks,R.C. Switzerland. 1918. —Sait,E.M. France. 1920.—Reed,T.H. Belgium. 1924.

369. Greene,Amy Blanche,& Gould,Frederic A. Handbook-bibliography on foreign language groups. N.Y.,Council of women for home missions,c1925.

370. Hague. Palace of peace. Library. Catalogue,par P.C.Molhuysen et E.R.Oppenheim. Leyde,Sijthoff,1916.

370.1. Hague. Permanent court of international justice. Bibliographical list. The Hague,1926. 2d ed. (Repr.from 2d annual report.) By J.Douma.

371. Handwörterbuch der Kommunalwissenschaften. Jena,Fischer,1918–24. 4v. Suppl.1927– . Ed.by J.Brix & others.

372. Hart,Albert Bushnell. Actual government as applied under American conditions. N.Y.,Longmans,1919.4th ed.

373. Hasse,Adelaide Rosalie. Index to U.S.documents relating to foreign affairs,1828–61. Wash.,1914–21.3v. (Carnegie inst.*Pub.*185.)

374. Hicks,Frederick Charles. New world order. Garden City,Doubleday,1920.

375. Institut Nobel norvégien. Bibliothèque. Catalogue. Kristiania,1922– .

375.1. International intermediary institute,The Hague. Répertoire général des traités et autres actes diplomatiques. Harlem,Tjeenk Willink,1926.

376. Internationale Vereinigung für vergleichende Rechtswissenschaft und Volkswirtschaftslehre zu Berlin. Internationales und ausländisches Recht. Ber.,Vahlen,1914.

377. Kennedy,William Paul McClure. Constitution of Canada. Lond.,Milford,1922.

378. Massachusetts. State library,Boston. Hand-list of legislative sessions . . . laws . . . codes,etc.,and constitutional conventions of the U.S.[Bost.,1912].

379. Meulen,Jacob ter. Concise bibliography of Hugo Grotius. Leyd.,Sijthoff, 1925.

380. Moon,Parker Thomas. Syllabus on international relations. N.Y.,Macmillan,1925. Issued by Inst.of internat.educ.

381. Munro,William Bennett. Bibliography of municipal government in the U.S. Camb.1915. (Harvard univ.Bureau for research in municipal govt.*Pub.*2.)

382. ——. Government of European cities. N.Y.,Macmillan,1921. 3d printing.

383. Myers,Denys Peter,ed. Manual of collections of treaties and of collections relating to treaties. Camb.1922. (*Harvard bibls.Library ser.*v.2.)

384. National institute of public administration. Bibliography of public administration,by Sarah Greer. N.Y.1926.

384.1. N.Y.Public library. List of works on county government. (In its *Bull.*19 (1915)p.433–70.) By R.A.Sawyer.

385. Ogg,Frederic Austin. Governments of Europe. N.Y.,Macmillan,1920.

386. Robertson,William Spence. Hispanic American relations with the U.S. . . . ed.by D.Kinley. N.Y.,Ox.univ.press,1923. Pub.of Carnegie endowment.

387. Royal Colonial Institute,London. Library. Bibliographies. [Lond.] 1915– . Contents:—1. Hill,W.C. Foreign colonization. 1915.—2. Lewin,E. Constitutional relations between the various parts of the British Empire. 1926. —3. Lewin,E. Relations between Europeans and coloured races. 1926.—4. Lewin,E. Communications of the Overseas British Empire. 1927.

388. Schnee,Heinrich. Deutsches Koloniallexikon. Lpz.,Quelle,c1920.3v.

389. Schroeder,Theodore Albert. Free speech bibliography. N.Y.,Wilson, 1922.

390. Seymour,Charles,& Frary,Donald Paige. How the world votes. Springfield,Nichols,1918.2v.

391. Stevens,Don Lorenzo. Bibliography of municipal utility regulation and municipal ownership. Camb.1918. (*Harvard business studies*,v.4.)

392. U.S.Library of Congress. Division of bibliography. List . . . relating to the theory of colonization. Wash.,Govt.print.off.,1900.2d ed. By A.P.C.Griffin.

393. ——. List of references on mandates. 1924. Mimeographed.

394. U.S.Library of Congress. Law library. Bibliography of international law and continental law,by E.M.Borchard. Wash.,Govt.print.off.,1913.

394.1. Webb,Sidney and Beatrice. English local government. Lond.,Longmans, 1906– .

G. 2. POLITICS. PERIODICALS

395. American journal of international law. N.Y.[1907]– . Pub.of Amer. soc.of internat.law.
396. American library in paris. Reference service on international affairs. Bulletin. Par.,1924– .
397. American political science review. Balt.1905– .
397.1. Année politique française et étrangère. Par.1926– .
398. British library of political science. Bulletin. Lond.1913– .
399. British year book of international law. Lond.1920– .
400. Foreign affairs. N.Y.[1922]– . Pub.by Council on foreign relations.
401. Grotius; annuaire international. La Haye,1913– .
402. Journal du droit international privé. Par.1874– .
403. Municipal index. N.Y.,Amer.city magazine,c1924– .
404. National municipal review. Balt.[etc.]1912– .
405. Political science quarterly. Bost.[etc.]1886– .
406. Revue des sciences politiques. Par.1886– .
407. Tablettes documentaires municipales. Brux.1921– .
408. Zeitschrift für die gesamte Staatswissenschaft. Tüb.[1844]– .

H. LAW

(1. *Retrospective.*—2. *Periodicals*)

Cf. also other sections of chap. 4, *Government publications* (*chap.* 9 *B*)*; also nos.* 128, 724 (*Amanieu*), 1453 (9. *Kaiser*).

409. American association of law libraries. Bibliographical . . . check list of proceedings of bar & allied associations. Des Moines,1923. By A.J.Small.
409.1. Beale,Joseph Henry. Bibliography of early English law books. Camb., Harvard univ.press,1926.illus.
409.2. Calhoun,George Miller,& Delamere,Catherine. Working bibliography of Greek law. Camb.,Harvard univ.press,1927.
[410. Fuchs,Wilhelm. Juristischer Literaturführer. Münster,Coppenrath,1925.]
410.1. General survey of . . . continental legal history. Bost.,Little,1912. Auspices of Assoc.of Amer.law schools. Gen.ed.,J.H.Wigmore.
410.2. Harvard University. Law school. Library. Catalogue. Camb.1909. 2v.
411. Hicks,Frederick Charles. Future of legal bibliography. (In A.L.A.*Bull.* 21(1927),p.418–23. Also in *Law lib.journ.*July 1927.)
412. ——. Materials and methods of legal research,with bibliographical manual. Rochester,Lawyers co-op.pub.co.,1923.
413. Kelmann,Eugen,& others. Juristische Literatur der Sowjet-Union. Ber., Prager,1926.
414. Law books and their use. Rochester,Lawyers' co-op.pub.co.,c1924.2d ed.
415. Middle Temple,London. Library. Catalogue. Glasg.,Univ.press,1914. 3v. By C.E.A.Bedwell.
416. Miller,Clarence A. U.S.public documents as law books. (In *Law lib.journ.* 18(1925)p.7–44.)
417. Palmer,Thomas Waverly,jr. Guide to the law and legal literature of Spain. Wash.1915. Pub.of Lib.of Congress.
418. Picard,Edmond,& Larcier,Ferdinand. Bibliographie générale . . . du droit belge. Brux.,Larcier,1882–90.4v. Suppl.by E.van Arenbergh 1906–13.4 pt.
419. Répertoire général alphabétique du droit français. Par.1886–1906. 37v. Suppl.,1911– . By A.Carpentier & others. Bibl.of bibl.by E.Dramard.
420. Sherman,Charles Phineas. Roman law in the modern world. Bost.,Bost. bk.co.,1917.3v.
421. Sweet & Maxwell,London. Bibliography of English law. Lond.1925– .

422. ——. Guide to the legal profession. Lond.1924.
422.1. U.S.LIBRARY OF CONGRESS. LAW LIBRARY. Guide to the law and legal literature of Germany,by E.M.Borchard. Wash.1912.
423. VINOGRADOFF,PAUL. Outlines of historical jurisprudence. Lond.,Ox.univ. press,1920– .
424. WINFIELD,PERCY HENRY. Chief sources of English legal history. Camb., Harvard univ.press,1925.

H. 2. LAW. PERIODICALS

425. AMERICAN BAR ASSOCIATION. Journal. Balt.1915– . Continues its *Bulletin.*
426. INDEX TO LEGAL PERIODICALS AND LAW LIBRARY JOURNAL. Chic.[etc.]1908– . *Index* continues those by L.A.Jones & F.E.Chipman,1888–1919.3v.
427. INTERNATIONALE VEREINIGUNG FÜR VERGLEICHENDE RECHTSWISSENSCHAFT UND VOLKSWIRTSCHAFTLEHRE. Jahrbuch. Ber.1895– .
427.1. JURIDICAL REVIEW. Edin.1889– .
427.2. LAW QUARTERLY REVIEW. Lond.1885– .
428. NOUVELLE REVUE HISTORIQUE DU DROIT français et étranger. Par.1877– .
428.1. ZENTRALBLATT DER RECHTSWISSENSCHAFT. Stutt.[etc.]1882– .

I. EDUCATION

(1. *Retrospective.*—2. *Periodicals*)

Cf. also Society publications (*chap.* 9 *D*) ; *also nos.* 228, 232, 234, 1099 (14. *Smith*) ; 1110 (*no.* 31).

429. AMERICAN ASSOCIATION OF UNIVERSITY PROFESSORS. Preceptorial or tutorial system. (In its *Bull.*Nov.1924.)
430. BLANCO Y SÁNCHEZ,RUFINO. Bibliografía pedagógica de obras escritas en castellano. Madr.,Rev.de arch.,bibl.y museos,1907–12.5v.
431. BOLTON,FREDERICK ELMER. Selected bibliography of books and monographs on education. Olympia,Wash.,Supt.of pub.instruction,1921.
432. COLUMBIA UNIVERSITY. LIBRARY. Books on education in the libraries. N.Y. 1901. (Its *Library bull.*2.) Ed.by C.A.Nelson.
433. CUBBERLEY,ELLWOOD PATTERSON. History of education. Bost.,Houghton, c1920.
434. ——. Syllabus of lectures on the history of education. N.Y.,Macmillan,1904.
435. ERMAN,WILHELM. Bibliographie der deutschen Universitäten. Lpz.,Teubner,1904–05.3v.
436. HALL,GRANVILLE STANLEY,& MANSFIELD,JOHN M. Hints toward a select and descriptive bibliography of education. Bost.,Heath,1886.
437. INDIANA.UNIV.SCHOOL OF EDUCATION. BUR.OF CO-OPERATIVE RESEARCH. Bibliography of educational measurements. Bloomington,1925.Rev.ed. (Its *Bull.* v.1,no.5.)
438. ISRAEL,AUGUST. Pestalozzi-Bibliographie. Ber.,Hofmann,1903–04.3v.
439. LANGLOIS,CHARLES VICTOR. Instruments de bibliographie pédagogique. (In his *Questions d'histoire*,etc. Par.,Hachette,1902.)
440. LA VAISSIÈRE,JULES DE. Psychologie pédagogique. Par.,Beauchesne,1916.
441. LEIPZIG. PÄDAGOGISCHE ZENTRALBIBLIOTHEK(COMENIUS-STIFUNG). Katalog. Lpz.[1903–12.3d ed.].
442. MONROE,PAUL. Cyclopedia of education. N.Y.,Macmillan,1911–13.5v.
442.1. MONROE,WALTER SCOTT,& ASHER,OLLIE. Bibliography of bibliographies. Urbana,1927. (Ill.Univ.Bur.of educ.research. *Bull.*36.)
443. REIN,WILHELM. Encyklopädisches Handbuch der Pädagogik. Langensalza, Beyer,1903–10.10v.2d ed. Index,1911.
444. SMITH,FAITH EDITH. Selected list . . . on part-time education. Alb.1922. (N.Y.State lib.*Bibl.bull.*71.)

445. **Soares, Theodore Gerald.** Religious education in the last twenty-five years. (In *Journ.of theol.*6(1926)p.1–16.)

I. 2. EDUCATION. PERIODICALS

446. **Blanco y Sanchez, Rufino.** Anuario de bibliografía pedagógica. Madr. 1920– . Earlier title: *Año ped.*
[446.1. **Education index.** N.Y.,Wilson. Projected.]
447. **Educational review.** N.Y.[etc.]1891– .
448. **Internationale Jahresberichte** für Erziehungswissenschaft. Bresl.1926– .
448.1. **National society for the study of education.** Yearbook. Chic.1895– .
449. **Pedagogical seminary.** Worcester,Mass.[1891]– .
450. **U.S.Bureau of education.** Bulletin. Wash.1906– .
451. ——. Library leaflet. Wash.1919– .

CHAPTER V

MUSIC, ART, LANGUAGE AND LITERATURE

A. MUSIC

(1. *Retrospective.*—2. *Periodicals.*)

Cf. also nos. 511, 1030.1, 1424 (11. *Steele*), 1529.

452. **Aber, Adolf.** Handbuch der Musikliteratur. Lpz.,Breitkopf,1922.
452.1. **Altmann, Wilhelm.** Orchester-Literatur-Katalog . . . seit 1850 erschienenen Orchester-Werken. Lpz.,Leuckart,1926.2d ed.
453. **Boston. Public Library. Allen A. Brown collection of music.** Catalogue. Bost.1910–16.4v.
454. **Brenet, Michel.** Bibliographie des bibliographies musicales. (In *Année musicale* 3(1913)p.1–152.)
455. **British museum. Dept.of manuscripts.** Catalogue of manuscript music. Lond.1906–09.3v. By A.Hughes-Hughes.
456. ——. **Dept. of printed books.** Catalogue of printed music published between 1487 and 1800. Lond.1912.2v. By W.B.Squire.
457. **Dickinson, Edward.** Study of the history of music. N.Y.,Scribner,1908.
458. **Eitner, Robert.** Biographisch-bibliographisches Quellen-Lexikon der Musiker und Musikgelehrten. Lpz.,Breitkopf,1900–04.10v.
459. **Fétis, François Joseph.** Biographie universelle des musiciens et bibliographie générale de la musique. Par.,Didot,1870–75.8v.2d ed. Suppl.1878–80.2v.
460. **Grove, George.** Grove's dictionary of music and musicians. N.Y.,Macmillan,1904–08.5v.2d ed. Amer.suppl.1920.3d ed.,1927–28.
461. **Littleton, Alfred Henry.** Catalogue of one hundred works illustrating the history of music. Lond.1911.
462. **London. Stationers' company.** Analytical index to the ballad-entries . . . by H.E.Rollins. Chapel Hill,Univ.of North Carolina press,1924.
463. **Matthew, James E.** Literature of music. Lond.,Stock,1896.
464. **New York. Public library.** Folk music of the western hemisphere. (In its *Bull.*Nov.–Dec.1924. Also reprinted.) By J.Matfield.
465. **Nottebohm, Gustav.** Ludwig von Beethoven; thematisches Verzeichnis . . . nebst Bibliographie von E. Kastner. Lpz.,Breitkopf,1913.2d ed. Bibl.also pub. separately.
465.1. **Paris. Bibliothèque nationale. Département des imprimés.** Catalogue du fonds de musique ancienne. Par.,Soc.internat.de musique,1910–14.10v. By J.Écorcheville.
466. **Poueigh, Jean.** Musiciens français d'aujourd'hui. Par.,Mercure de France, 1921.7th ed.

467. Quarry,W.Edmund. Dictionary of musical compositions and composers. N.Y.,Dutton[1920].

468. Riemann,Hugo. Grundriss der Musikwissenschaft. Lpz.,Quelle,1908.

469. Ruthardt,Adolf. Wegweiser durch die Klavier-Literatur. Lpz.,Hug,1925.

470. Schlesinger,Kathleen. Bibliography of musical instruments and archæology. Lond.,Reeves,1912. Includes facsims.of mss.

470.1. Sears,Minnie Earl, & Crawford,Phyllis. Song index. N.Y.,Wilson, 1926.

471. Sonneck,Oscar George Theodore. Bibliography of American music. (In Bibl.Soc.of Amer.*Proceedings* 1(1904–05)p.50–64.)

471.1. U.S.Library of Congress. Division of Music. Catalogue of early books on music(before 1800)by J.Gregory. Wash.1913.

471.2. ——. Catalogue of opera librettos printed before 1800 . . . by O.G.T. Sonneck. Wash.1914.2v.

472. Universal-Handbuch der Musikliteratur. Wien,Pazdírek[1904–10].34v.

A. 2. MUSIC. PERIODICALS

[473. Altmann,Wilhelm. (In *Musikalienhandel* 25(1923),p.297.)]

473.1. Challier,firm. Grosser Lieder-Katalog. Ber.1885. Suppls.1886– .

474. Handbuch der musikalischen Literatur. Lpz.,Hofmeister,1844–45.3v. 3d ed. Yearly & monthly suppls.,1852– .

475. Jahrbuch der Musikbibliothek Peters. Lpz.1895– .

476. Music and Letters. Taunton,1920– .

477. Revista musical catalana; butlletí del "Orfeó catalá." Barcelona[1904]– .

478. Revue de musicologie. Par.1917– .Pub.of Soc.franç.de musicologie.

479. Revue musicale. Par.1901– .

480. Rivista musicale italiana. Torino,1894– .

481. Zeitschrift für Musikwissenschaft. Lpz.1918– . Pub.of Deutsche Musikgesellschaft.

B. ART AND ARCHÆOLOGY

(1. *Retrospective.*—2. *Periodicals*)

Cf. also archæological works under History and Auxiliary sciences (*chap.* 4), *Oriental and Classical studies* (*chap.* 5) ; *also Book-decoration* (*chap.* 14) ; *also nos.* 724 (*Cabrol*), 1170, 1274 (*no.* 6), 1428 (*Guiffrey*), 1447 (*Fierens.–Colin*).

[481.1. American association of museums. Bibliography on museum work. In preparation.]

482. Boston. Museum of fine arts. Bibliographies of Indian art,by A.K. Coomaraswamy. Bost.1925. Repr.from its Catalogue of the Indian collections.

483. Boston. Public Library. Catalogue of books relating to architecture, construction and decoration. Bost.1914.2d ed. (*Subject catalogue* no.10.)

483.1. Bourcard,Gustave. Graveurs et gravures. Par.,Floury,1910.

484. Brussels. Académie royale des beaux-arts et École des arts décoratifs. Bibliothèque. Catalogue. Brux.,Guyot,1903. By G.Lagye.

484.1. Clark,Marion Elizabeth,& others. Art in home economics. Chic., Univ.press,c1925.

485. College art association of America. Books for the college art library. (In *Art Bull.*3(1920),p.3–60.)

486. Columbia university. Library. Avery architectural library. Catalogue. N.Y.1895.

487. Corpus vasorum antiquorum. Par.,Champion[1922]– .

488. K.Deutsches archäologisches Institut,Rom.Bibliothek. Katalog . . . von A.Mau. Rom.,Loescher,1913– . New ed.by E.von Mercklin.

489. Fletcher,Banister Flight. History of architecture. N.Y.,Scribner,1924.

490. Harshe, Robert B. Reader's guide to modern art. San Fran.,Wahlgreen, c1914.
491. Hind, Arthur Mayger. History of engraving and etching. Lond.,Constable,1923.3d ed.
492. Kimball, Theodora. Manual of information on city planning. Camb.,Harvard univ.press,1923.
493. Laurie, Arthur Pillans. Materials of the painter's craft. Lond.,Foulis, 1910.
493.1. Leach, Howard Seavoy. Princeton's Iconographic index. (In *L.J.*50(1925) p.208–10.)
493.2. Ledoux, Louis Vernon. Art of Japan. N.Y.,Japan soc.,1927.
494. Levis, Howard Coppuck. Descriptive bibliography . . . books in the English language,relating to . . . engraving . . . prints. Lond.,Ellis,1912. Suppl.1913.
495. Lipperheide, Franz Joseph von. Katalog der . . . Kostümbibliothek. Ber. 1896–1905.2v.facsims.
496. Lyell, Arthur Henry. Bibliographical list descriptive of Romano-British architectural remains. Camb.,Univ.press,1912.
497. McGill university. Library. Catalogue of books on art. Montreal,1926.
[498. Mandel' štam, R.S. Chudožestvennaja literatura v ocenke russkoj marksistskoj kritiki. Moskva,1923.2d ed.]
499. Marquet de Vasselot, Jean J. Bibliographie de l'orfèvrerie et de l'émaillerie françaises. Par.,Picard,1925.
500. Mély, Fernand de,& Bishop, Edmund. Bibliographie générale des inventaires imprimés. Par.,Leroux,1892–95.3v.
501. Michel, André. Histoire de l'art depuis les premiers temps chrétiens. Par., Colin,1905– .
502. Minns, Susan. Illustrated catalogue of the notable collection . . . illustrative of "The dance of death." [Greenwich,Conn.,Condé-Nast,1922.]
503. New York. Metropolitan museum of art. Library. Bibliography of museums and museology . . . by W.Clifford. N.Y.1923.
504. Porter, Arthur Kingsley. Lombard architecture. New Haven,Yale univ. press,1915–17.4v.
505. ——. Medieval architecture. N.Y.,Baker,1909.2v.
506. Post, Chandler Rathfon. History of European and American sculpture. Camb.,Harvard univ.press,1921.2v.
507. Reinach, Salomon. Apollo;an illustrated manual of the history of art. N.Y., Scribner,1917. New ed.trans.by F.Simmonds.
508. Schlosser, Julius von. Kunstliteratur. Wien,Schroll,1924.
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673.1. English association. Pamphlets. [Ox.1907]– . Partial contents: 61. Lee, S.,& Chambers,E. *Shakespeare reference library.*2d ed.1925.—65. *Reference library; Eng.lang.& lit.*2d ed.1927.

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674. Hammond,Eleanor Prescott. Chaucer; a bibliographical manual. N.Y., Macmillan,1908. Suppl.by D.D.Griffith,1926(Univ.of Wash.*Pubs.in lang.& lit.*4).

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676. Körting,Gustav Carl Otto. Encyklopaedie und Methodologie der englischen Philologie. Heilbronn,Henninger,1888.

676.1. Leach,Howard Seavoy. Union list of collections of English drama. (In Amer.library inst.*Proc.*,1916,p.72–81. Also repr.)

677. Leisy,Ernest E. Materials for investigations in American literature. (In *Studies in philology* 23(1926)p.90–115.)

677.1. Manly,John Matthews,& Rickert,Edith. Contemporary American literature. N.Y.,Harcourt,c1922.

677.2. ——. Contemporary British literature. N.Y.,Harcourt,1921.

677.3. New York. Public library. Journalism. (In its *Bull.*27(1923)*passim.* Also repr.) By C.L.Cannon.

678. NORTHUP,CLARK SUTHERLAND. Register of bibliographies of the English language and literature. New Haven,Yale univ.press,1925.

679. SERLE,PERCIVAL. Bibliography of Australasian poetry and verse. Melbourne,Univ.press,1925.

679.1. U.S.COPYRIGHT OFFICE. Dramatic compositions copyrighted . . . 1870–1916. Wash.1918.2v.

680. WELLS,JOHN EDWIN. Manual of the writings in Middle English,1050–1400. New Haven,Yale univ.press,1916. Suppls.,1919,1923,1927.

L. 2. ENGLISH. PERIODICALS

681. ANGLIA,ZEITSCHRIFT FÜR ENGLISCHE PHILOLOGIE. Beiblatt. Halle,1891– .

682. BEST SHORT STORIES OF 1915– ,& the yearbook of the American short story. Bost.[1918]– . Ed.by E.J.O'Brien.

683. DEUTSCHE SHAKESPEARE-GESELLSCHAFT. Jahrbuch. Ber.[etc.]1865– .

684. DRAMATIC INDEX. Bost.1910– . Pub.with *Annual magazine subject index.*

685. ENGLISH ASSOCIATION. Bulletin.[Ox.]1907– .

686. ——. Year's work in English studies. Lond.1921– .

687. ENGLISH JOURNAL. Chic.1912– . Pub.of Nat.council of teachers of Eng.

688. MODERN HUMANITIES RESEARCH ASSOCIATION. Annual bibliography of English language and literature. Camb.[etc.]1921– . Earlier title:*Bibl.*etc.

689. REVIEW OF ENGLISH STUDIES. Lond.1925– .

M. GERMAN

(1. *Retrospective.*—2. *Periodicals*)

690. ARNOLD,ROBERT FRANZ. Allgemeine Bücherkunde zur neueren deutschen Literaturgeschichte. Ber.,Trübner,1919.2d ed.

691. BEREND,EDUARD. Jean Paul-Bibliographie. Ber.1926.

692. GOEDEKE,KARL. Grundriss zür Geschichte der deutschen Dichtung aus den Quellen. Dresd.,Ehlermann,1884–1913.10v.2d ed. 3d ed.,1907– .

693. MORGAN,BAYARD QUINCY. Bibliography of German literature in English translation. Madison,1922. (Univ.of Wis.*Studies in lang.& lit.*16.)

693.1. NOLLEN,JOHN SCHOLTE. Chronology and practical bibliography of modern German literature. Chic.,Scott,1903.

694. RUDWIN,MAXIMILIAN JOSEF. Historical and bibliographical survey of the German religious drama. Pittsburgh,Univ.of Pittsb.,1924.

695. SCHERER,WILHELM. Geschichte der deutschen Literatur. Ber.,Weidmann, 1902.9th ed.

M. 2. GERMAN. PERIODICALS

696. JAHRESBERICHT ÜBER DIE WISSENSCHAFTLICHEN ERSCHEINUNGEN auf dem Gebiete der neueren deutschen Literatur, hrsg.von der Literaturarchiv-Gesellschaft. Ber.,de Gruyter,1924– . Continues *Jahresber.f.neuere dts.Literaturgesch.*

697.TEUTHONISTA . . . DEUTSCHE DIALEKTFORSCHUNG UND SPRACHGESCHICHTE. Bonn,1924– .

698. ZEITSCHRIFT FÜR DEUTSCHE PHILOLOGIE. Halle,1869– .

N. DUTCH

[699. MAATSCHAPIJ DER NEDERLANDSCHE LETTERKUNDE TE LEIDEN. BIBLIOTHEEK. Catalogus. Leiden,Brill,1887–89.3v.]

700. PETIT,LOUIS DAVID. Bibliographie der Middelnederlandsche taal- en letterkunde. Leid.,Brill,1888–1910.2v.

701. PRINSEN,J. Handboek tot de Nederlandsche letterkundige geschiedenis. 's Gravenhage,Nijhoff,1920.2d ed.

O. SCANDINAVIAN

702. ARKIV FÖR NORDISK FILOLOGI. Christiania[etc.]1889– .
702.1. CORNELL UNIVERSITY. LIBRARY. Catalogue of Runic literature. Lond., Milford,1918. By H.Hermannsson.
703. FIRKINS,INA TEN EYCK. Henrik Ibsen,a bibliography. N.Y.,Wilson,1921.
703.1. SAMLAREN. Uppsala,1880– . Pub.of Svenska litteratursällskapet.

P. SLAVIC

704. ARCHIV FÜR SLAVISCHE PHILOLOGIE. Ber.1876– .
[705. JUŽNOSLOVENSKI FILOLOG. Belgrade,1920– .]
[706. KRITISCH-BIBLIOGRAPHISCHER JAHRESBERICHT der estnischen Philologie. Dorpat,1922– .]
707. MIRSKY,DMITRY SUVATOPOLK. History of Russian literature. N.Y.,Knopf, 1927.
[708. PIKSANOV,N.K. Starorusskaja povest′; . . . bibliografiia. Moskva,1923.]
709. SLAVIA. Prague,1922– .
710. STANOYEVICH,MILIVOY S. Early Jugoslav literature(1000–1800). N.Y.,Columbia univ.press,1922.
711. STOLARZEWICZ,LUDWIK. Bibliografja Mickiewiczowska. Wilno,1924.

Q. OTHER LANGUAGES

713. QVIGSTAD,JUST KNUD,& WIKLUND,K.B. Bibliographie der lappischen Litteratur. Helsingfors,Finnische Litteratur-Gesellschaft,1899.
714. SIMONYI,ZSIGMOND. Ungarische sprache. Strassb.,Trübner,1907.
716. TOOMEY,NOXON. Bibliographies of lesser North American linguistic families. St.Louis,1917. (Hervas laboratories of Amer.linguistics.*Bull.*1.)
717. TOZZER,ALFRED MARSTON. Maya grammar. Camb.1921. (Harvard univ. Peabody museum. *Papers*.v.9.)
717.1. VINSON,JULIEN. Essai d'une bibliographie de la langue basque. Par.,Maisonneuve,1891–98.2v.
[717.2. VIZCAYA,SPAIN. DIPUTACIÓN PROVINCIAL. BIBLIOTECA. Ensayo de un catálogo de la Sección vascongada. Bilbao,Rochelt,1919.]

CHAPTER VI

RELIGION. PHILOSOPHY. SCIENCES, PURE AND APPLIED

A. RELIGION

(1. *Retrospective*.—2. *Periodicals*)

Cf. also Anthropology, etc. (*chap.* 4 *C*), *Ancient Languages* (*chap.* 5 *D–E*); *also nos.* 111, 155, 445.

718. AYRES,SAMUEL GARDINER. Jesus Christ our Lord. N.Y.,Armstrong,1906.
719. BRATKE,EDUARD. Wegweiser zur Quellen- und Litteraturkunde der Kirchengeschichte. Gotha,Perthes,1890.
720. BRITISH AND FOREIGN BIBLE SOCIETY. LIBRARY. Historical catalogue of the printed editions of Holy Scripture. London,Bible House,1903–11.2v.in 4.
721. CATHOLIC ENCYCLOPEDIA. N.Y.,Appleton,c1907–22.17v.
721.2. DICTIONARY OF THE BIBLE, ed.by J.Hastings[&]J.A.Selbie. N.Y.,Scribner, 1905–09.5v.
722. ÉMERY,LOUIS. Introduction à l'étude de la théologie protestante,avec index bibliographicus. Lausanne[1904].
723. ENCYCLOPÆDIA OF RELIGION AND ETHICS,ed.by J.Hastings [and others]. N.Y.,Scribner,1908–27.12v.& index.
724. ENCYCLOPÉDIE DES SCIENCES ECCLÉSIASTIQUES . . . par les savants catholiques. Par.,Letouzey,1895– . Partial contents:—Vigouroux,F. Dict.de la Bible.

1895–1912.5v.—Vaçant,J.M.A.,& Mangenot,F. Dict.de théol. 1903– .—Cabrol, F.,& Leclercq,H. Dict.d'archéol.chrétienne. 1907– .—Baudrillart,A. Dict.d'hist. et géog.ecclés. 1912–21.3v.—Amanieu,A. Dict.du droit canonique. 1924– .

726. Hiersemann,firm,Leipsic. De imitatione Christi. Lpz.1923. Sales cat.

727. Hurst,John Fletcher. Literature of theology. N.Y.,Hunt,1896.

728. Hurter,Hugo. Nomenclator litterarius theologiae catholicae. Wien,1926– . 4th ed.,by F.Pangerl.

729. John Rylands library,Manchester. Catalogue of an exhibition illustrating the . . . transmission of the Bible. Manchester,Univ.press,1925.

730. Jordan,Louis Henry. Comparative religion; a survey of its recent literature. Lond.,Milford,1920.v.1.2d ed.

731. ——. Comparative religion,its adjuncts and allies. Lond.,Milford,1915.

732. Julian,John. Dictionary of hymnology. N.Y.,Scribner,1907.2d ed.

733. Little,Andrew George. Guide to Franciscan studies. Lond.,Soc.for promoting Christian knowledge,1920. (*Helps for students of history* 23.)

734. Mandonnet,Pierre,& Destrez,J. Bibliographie thomiste. Le Saulchoir, Kain,1921.

734.1. Mathews,Shailer,& Smith,Gerald Birney. Dictionary of religion and ethics. N.Y.,Macmillan, 1921.

735. Mode,Peter George. Source book and bibliographical guide for American church history. Menasha,Wis.,Banta,c1921.

736. New York. Missionary research library. Recommended titles on missions. N.Y.,Comm.of reference & counsel,1925. By H.W.Hering.

737. New York. Public library. Druids and druidism; a list of references. (In its *Bull.*20(1920)p.11–24. Also reprinted.) By G.F.Black.

738. New York. Union theological seminary. A theological bibliography. N.Y.[1918].

738.1. ——. Library. Catalogue of the McAlpin collection of British history and theology. N.Y.1927– . By C.R.Gillett.

739. Pittsburgh. Western theological seminary. Bibliography. (In its *Bull.*10 no.1(Oct.1917).)

739.1. Realencyklopädie für protestantische Theologie und Kirche. Lpz., Hinrichs,1896–1913.24v.3d ed. Ed. by A.Hauck.

739.2. Religion in Geschichte und Gegenwart. Tüb.,Mohr,1909–13.5v. New ed.,1927– . Ed.by H.Gunkeld & L.Zcharnack.

740. Schaff-Herzog encyclopedia. New Schaff-Herzog encyclopedia of religious knowledge. N.Y.,Funk[1908–14].13v. Based on no.739.1. By S.M. Jackson & others.

741. Vollmer,Hans Arthur. Materialen zur Bibelgeschichte und religiösen Volkskunde des Mittelalters. Ber.,Weidmann,1912– . Facsims.

742. Wetzer und Welte's Kirchenlexikon . . . der katholischen Theologie. Freib.,Herder,1886–1903.12v.& index.

743. Whitley,William Thomas. Baptist bibliography. Lond.,Kingsgate press, 1916–22.2v.

744. Wright,John. Historic Bibles in America. N.Y.,Whittaker,c1905.

A. 2. RELIGION. PERIODICALS

745. Analecta Bollandiana. Brux.,Soc.des Bollandistes,1882– .

746. Archiv für Religionswissenschaft. Freiburg[etc.]1898– . Publishes annual *Religionsgeschichtliche Bibliographie*,1917– (covering 1914–).

747. Expositor's yearbook; a survey of the . . . literature. Lond.[1926]– .

747.1. Harvard theological review. N.Y.1908– . Cf.esp.v.17–18(1924–25).

748. Journal of religion. Chic.1921– . Continues *Amer.journ.of theol.& Biblical world.*

749. Princeton theological review. Phila.[etc.]1903– .

750. Revue bénédictine. Abbaye de Maredsous, 1884– .

750.1. Revue d'histoire ecclésiastique. Louvain,1900– .

750.2. Revue des sciences réligieuses. Par.1921– .

751. Richardson,Ernest Cushing,& others. Periodical articles on religion, 1890–99. N.Y.,Scribner,c1911. Preceded by *Alphabetical subject index*,c1907.

752. Theologische Literaturzeitung. Lpz.[etc.1876]– .

B. PHILOSOPHY AND PSYCHOLOGY

(1. *Retrospective.*—2. *Periodicals.*)

Cf. also Education (*chap.* 4 *I*), *Classical studies* (*chap.* 5 *E*)*; also nos.* 790 (72. *Manson*), 974.1, 1447 (*Hoffmanns*).

753. Baldwin,James Mark, ed. Dictionary of philosophy and psychology. N.Y.,Macmillan,1901–05.3v. v.3,bibl.,by B.Rand. New ed.,1910.

753.1. Caillet,Albert Louis. Manuel bibliographique des sciences psychiques ou occultes. Par.,Dorbon,1912–13.3v.

754. Columbia university. Library. Contribution to a bibliography of Henri Bergson. N.Y.,Columbia univ.press,1913.

754.1. Dittrich,Ottmar. Geschichte der Ethik. Lpz.,Meiner,1926.3v.

755. Eisler,Rudolf. Philosophen-Lexikon. Ber.,Mittler[1911]–12.

756. ——. Wörterbuch der philosophischen Begriffe. Ber.,Mittler,1910.3v.4th ed., 1927– . Cf.also his *Handwörterbuch der Philosophie*,1922.

757. Estey,Helen Grace. Bibliography of psychology. Gardner,Mass.,1926.

759. Herbertz,Richard. Philosophische Literatur. Stutt.,Spemann,1912.

760. Jodl,Friedrich. Lehrbuch aer Psychologie. Stutt.,Cotta,1924.2v.5th–6th ed.,by C.Siegel.

761. Leroux,Emmanuel. Bibliographie méthodique du pragmatisme américain et anglais. Par.,Alcan,1922.

761.2. Roback,Abraham Aaron. Bibliography of character and personality. Camb.,Sci.art.publishers,1927.

762. Sorley,William Ritchie. History of English philosophy. Camb.,Univ. press,1920.

763. Ueberweg,Friedrich. Grundriss der Geschichte der Philosophie. Ber., Mittler,1915–24.4v.10th–12th ed.,rewritten by various authors.

B. 2. PHILOSOPHY AND PSYCHOLOGY. PERIODICALS

764. Année psychologique. Par.1895– . Pub.of laboratory of the Sorbonne.

765. Journal of philosophical studies. Lond.1926– .

766. Literarische Berichte aus dem Gebiete der Philosophie. Erfurt,1923– .

767. Mind. Lond.[etc.]1876– .

768. Philosophical review. Bost.1892– .

769. Philosophie der Gegenwart. Heidelb.1910–16.

769.1. Psychological abstracts. Lancaster,Amer.psychol.assoc.,1927– .

770. Psychological bulletin. Alb.[etc.]1904– .

771. Psychological index. N.Y.[etc.]1894– . Cf.*Union list of foreign serials cited*,pub.by Nat.research council,1925.

772. Revue néo-scolastique. Louvain,1894– .

773. Zeitschrift für Psychologie. Hamb.[etc.]1890– .

C. GENERAL SCIENCE

(1. *Retrospective.*—2. *Periodicals*)

Cf. also nos. 5, 481.1, 1099, 1110, 1166, 1172.

774. Beal,W.H.,& Ogden,E.Lucy. Contributions of the U.S.dept.of agriculture to the bibliography of science. (In Bibl.Soc.of Amer.*Proc.*2(1908)p.135–52.)

775. Cattell,James McKeen. American men of science. N.Y.,Science Press, 1927.4th ed.
776. Eason,Alec Birks. Where to seek for scientific facts. Lond.,Rentell[1924].
777. Handwörterbuch der Naturwissenschaften. Jena,Fischer,1912–15,10 v. By E.Korschelt & others.
778. John Crerar library,Chicago. List of books on the history of science. Chic.1911. Suppl.,1917. By A.G.S.Josephson.
778.1. Pittsburgh. Carnegie library. Men of science and industry. Pittsburgh,1915.
779. Poggendorff, Johann Christian, & others. Biographisch-literarisches Handwörterbuch zur Geschichte der exacten Wissenschaften. Lpz.,Barth [1858]– .
779.1. Sarton,George. Introduction to the history of science. Balt.,Williams, c1927– . (Carnegie inst.*Pub*.376.)
779.2. Scienziati italiani. Roma,Nardecchia,1921– . Ed.by A.Mieli.
780. Sedgwick,William Thompson. Short history of science. N.Y.,Macmillan, 1923.
781. Sotheran,Henry,& co.,London. Bibliotheca chemico-mathematica. Lond., 1921.2v.
782. Thomson,John Arthur. Classified bibliography of science,from Thomson's "The outline of science." (In L.J.48(1923)p.33–38.)
783. Woodruff,Lorande Loss,& others. Development of the sciences. New Haven,Yale univ.press,1923.

C. 2. GENERAL SCIENCE. PERIODICALS

784. Académie des sciences,Paris. Inventaire des périodiques scientifiques des bibliothèques de Paris. Par.,Masson,1924–25.4 pt. By A.Lacroix & others.
784.1. Archivio di storia della scienza. Roma,1919– .
785. British science guild. Catalogue of British scientific and technical books. Lond.,1925.New ed. Suppls.1926– .
786. International catalogue of scientific literature. Lond.1902–21. Pub. for Internat.council by Royal soc.of Lond. Cf.*List of journals* indexed.1903,& suppl.1904.
787. Isis. Wondelgem-lez-Gand[etc.]1913– .
788. Lomer,Gerhard Richard,& Mackay,Margaret S. Catalogue of scientific periodicals in Canadian libraries. Montreal,McGill univ.,1924.
789. National research council. *Bulletin*. Wash.1919– . Partial contents:—3. Cobb,R.S. Periodical bibliographies and abstracts.—36. Mathews,E.B. Catalogue of published bibliographies in geology 1896–1920.—47. Darrow,K.K. Classified list of published bibliographies in physics 1910–22.—50. West,C.J.,& Berolzheimer,D.D. Bibliography of bibliographies on chemistry 1900–24.—58. Handbook of scientific and technical societies and institutions of U.S.and Canada.
790. ——. Reprint and circular series. Wash.1919– . Partial contents:—6. Angell,J.R. Development of research in the U.S.—12,26,42,75. Hull,C.,& West, C.J. Doctorates conferred . . . in 1920– .—20. Swanton,W.I. Libraries in the District of Columbia.—21. Fulcher,G.S. Scientific abstracting.—27. Little,H.P. List of manuscript bibliographies in geology and geography.—34. Fulcher,G.S. Indexing of scientific articles.—36. West,C.J.,& Hull,C. List of manuscript bibliographies in chemistry and chemical technology.—37. Joerg,W.L.G. Recent geographical work in Europe.—40. Fulcher,G.S. Usefulness of analytic abstracts.—41. West,C.J.,& Hull,C. List of manuscript bibliographies in astronomy,mathematics and physics.—45. West & Hull. List of manuscript bibliographies in the biological sciences.—56. Jenks,A.E. Suggestion for abstracts of anthropological literature.—72. Manson,G.E. Bibliography of the analysis and

measurement of human personality.—73. List of publications of the Nat.res. council and its fellows.

791. Naturae novitates; Bibliographie . . . der Naturgeschichte und der exakten Wissenschaften. Ber.,Friedländer,1879– . Priced catalogue.
792. Nature. Lond.[etc.],1870– .
793. Naturwissenschaften. Ber.1913– . Cf. also its annual *Ergebnisse der exakten Naturwissenschaften*,1922– .
794. Royal society of London. Catalogue of scientific papers (1800–1900). Lond.[etc.]1867–1925.19v. Subj.index,1908– .
794.1. Science. Camb.[etc.]1883– .
795. Science progress. Lond.1906– .
796. Scientia. Bologna[etc.]1907– .
797. Sparn,Enrique. Catalogo universal de revistas de ciencias exactas. Cordoba,1920. (Acad.nac.de ciencias. *Miscelanea* 1.)
798. Tweedell,Edward D. Bibliographic needs in science. (Abstract in *A.L.A. Bulletin* 19(1925)p.297.)
799. U.S.Bureau of standards. Circular. Wash.1903– .
801. U.S.National museum. Bulletin. Wash.1875– . Cf.*Bull.*51 & suppl.,*List of pubs.*
802. Who's who in science(international). Lond.[etc.1912]– .
803. World list of scientific periodicals published in the years 1900–1921. Lond.,Oxford univ.press,1925–27.2v.

D. MATHEMATICS

(1. *Retrospective.*—2. *Periodicals*)

Cf. also no. 790 (41. *West*), 1424 (*Thomas Stanford*).

804. American mathematical society,New York. Library. Catalogue. N.Y., 1925. Ed.by R.C.Archibald.
805. Cajori,Florian. History of mathematics. N.Y.,Macmillan,1919.2d ed.
806. Dickson,Leonard Eugene. History of the theory of numbers. Wash., 1919– . (Carnegie inst.of Wash.*Pub.*256.)
807. Encyclopédie des sciences mathématiques . . . éd.française. Par.,Gauthier-Villars,1904– . Auspices of scientific socs.of Gött.,Lpz.,& Mun.
808. Maire,Albert. Pascal savant; ses travaux mathématiques et physiques. Par.,Giraud-Badin,1925. (*Bibl.gén.des œuvres de Blaise Pascal*,1.)
809. Miller,George Abram. Historical introduction to mathematical literature. N.Y.,Macmillan,1916.
810. Müller,Felix. Führer durch die mathematische Literatur. Lpz.,Teubner, 1909.
811. Nielsen,Niels. Matematiken i Danmark 1801–1908. Køb.,Gyldendal,1910.
812. Rogg,Ignaz. Handbuch der mathematischen Literatur. Tüb.,Fues,1830. Continued by Sohncke,L.A. *Bibliotheca mathematica.* Lpz.,Engelmann,1854.
813. Smith,David Eugene. Rara arithmetica . . . written before the year MDCI, with a description of those in the library of G.A.Plimpton. Bost.,Ginn,1908.
814. Wölffling,Ernst. Mathematischer Bücherschatz . . . des 19.Jahrhunderts. Lpz.,Teubner,1903.

D. 2. MATHEMATICS. PERIODICALS

814.1. Acta mathematica. Stockholm,1882– .
815. American mathematical society,New York. Bulletin. N.Y.[etc.]1892– .
816. Bibliotheca mathematica. Stockholm[etc.]1884–1915.
817. Jahrbuch über die Fortschritte der Mathematik. Ber.1871– .
818. Paris. École pratique des hautes études. Bibliothèque. Bulletin des sciences mathématiques. Par.1870– .

819. Répertoire bibliographique des sciences mathématiques,1-2000. Par. 1894-1912. Index,1916. On cards. Pub.of Congrès internat.de bibl. . . . math.

820. Revue semestrielle des publications mathématiques. Amst.1892- .

821. Smith,David Eugene,& Seely,Caroline Eustis. Union list of mathematical periodicals. (U.S.Bur.of educ.*Bull.*1918,no.9.)

822. Unione matematica italiana. Bollettino. Bologna[1923]- .

E. ASTRONOMY

(1. *Retrospective.*—2. *Periodicals*)

Cf. also 790 (41. *West*), 1099 (16, 39. *Weber*), 1110, 1169, 1435 (16. *Carli*), 1447 (*Collard*).

[823. Brussels. Observatoire royal de Belgique. Bibliothèque. Catalogue alphabétique. Brux.,Hayez,1910- .]

824. Hevelius Handbuch für Freunde der Astronomie und kosmischen Physik. Ber.,Dümmler,1922. Ed.by J.Plassmann.

825. Houzeau,Jean Charles,& Lancaster,Albert Benoît Marie. Bibliographie générale de l'astronomie. Brux.,Hayez,1882-89.2v.

826. Müller,Gustav,& Hartwig,Ernst. Geschichte und Literatur des Lichtwechsels der . . . veränderlich anerkannten Sterne. Lpz.,Poeschel,1918-22.3v.

[827. Royal astronomical society,London. Library. Catalogue. Lond.1886. Suppl.,1900.]

828. ——. Grove-Hills library. Catalogue. Lond.1924.

829. Stroobant,Paul,& others. Observatoires astronomiques et les astronomes. Brux.,Hayez,1907.

830. Valentiner,Wilhelm,& others. Handwörterbuch der Astronomie. Bresl., Trewendt,1897-1902.4v.

831. Wolf,Rudolf. Handbuch der astronomie. Zür.,Schulthess,1890-93.2v.

E. 2. ASTRONOMY. PERIODICALS

832. Astronomischer Jahresbericht. Ber.1899- .

833. Astrophysical journal. Chic.1895- . Continues *Astron.& astro-physics.*

834. Bulletin astronomique. Par.1884- . Pub.of Paris Observatory.

834.1. Royal astronomical society. Monthly notices. Lond.1831- .

F. PHYSICS

(1. *Retrospective.*—2. *Periodicals*)

Cf. no. 789 (47. *Darrow*), 790 (41. *West*), 1110 *etc.*

835. Allen,Herbert Stanley. Photo-electricity. N.Y.,Longmans,1925.2d ed.

836. American institute of electrical engineers. Library. Catalogue of the Wheeler gift. N.Y.1909.2v. By W.D.Weaver & J.Plass.

836.1. Born,Max. Constitution of matter,modern atomic and electron theories. N.Y.,Dutton[1923]. Trans.from 2d German ed.by E.W.Blair & T.S.Wheeler.

836.2. Glazebrook,Richard Tetley,ed. Dictionary of applied physics. Lond., Macmillan,1922-23.5v.

837. Gray,George John. Bibliography of the works of Sir Isaac Newton. Camb., Bowes,1907.2d ed.

838. Handbuch der Experimentalphysik. Lpz.,Akad.Verlag,1926- . Ed.by W.Wien & F.Harms.

839. Handbuch der Physik. Ber.,Springer,1926-27.24v. Ed.by H.Geiger & K. Scheel.

840. Handbuch der Radiologie. Lpz.,Akad.Verlag,1913- . Ed.by E.Marx.

841. Kayser,Heinrich Gustav Johannes,& others. Handbuch der Spectroscopie. Lpz.,Hirzel,1901-12.6v.

842. Lecat,Maurice Marie Albert. Bibliographie de la relativité,suivie d'un appendice sur les déterminants à plus de deux dimensions. Brux.,Lamertin,1924.

843. Mann,Charles Riborg. Histories and bibliographies of physics. (In Bibl. Soc.of Chic.*Yearbook*,1901–02,p.31–40.)

844. Mottelay,Paul Fleury. Bibliographical history of electricity and magnetism; chronologically arranged. Lond.,Griffin,1922.

845. National research council,& National academy of sciences. International critical tables of numerical data,physics,chemistry and technology. N.Y., McGraw,1926– . Ed.-in-chief,E.W.Washburn.

[846. National research council. Division of engineering and industrial research. Bibliography on core losses in electrical machinery. Wash.,1925.]

F. 2. PHYSICS. PERIODICALS

847. Physikalische Berichte. Brns.1920– . Continues *Fortschritte der Physik* & parts of *Annalen der Physik*. Auspices of Deutsche phys.Gesellsch.& others.

848. Science abstracts. Lond.[etc.1898]– . By the Inst.of electrical engineers, Phys.soc.of Lond.,Amer.phys.soc.,etc.

849. Tables annuelles de constantes et données numériques de chimie,de physique et de technologie. Par.[etc.]1912– .

G. METEOROLOGY

Cf. also nos. 1099 (6. *Weber*), 1110, *etc.*

850. Milham,Willis Isbister. Meteorology. N.Y.,Macmillan,1912.

851. Royal meteorological society,London. Bibliography of meteorological literature. Lond.[1922]– . Continues bibl.of its *Quarterly journ.*

[852. Shaw,Napier. Manual of meteorology. Camb.,Univ.press,1926– .]

853. Sparn,Enrique. Bibliografía meteorologica y climatologica . . . Argentina . . .[&]Antartica. Cordoba,1923. (Acad.nac.de ciencias. *Miscelanea* 7.)

854. U.S.Weather bureau. Monthly weather review. Wash.[1872]– .

855. ——. Library. Brief list of meteorological text-books and reference books. Wash.1913.3d ed. By C. F. Talman.

H. CHEMISTRY

(1. *Retrospective.*—2. *Periodicals*)

Cf. also nos. 78, 789 (50. *West*), 790 (36. *West*), 1110 (*no.* 40), *etc.*

857. Beilstein,Friedrich Konrad. Handbuch der organischen Chemie. Ber., Springer,1918– .4th ed.,by B.Prager & others.

858. Crane,Evan Jay,& Patterson,Austin McDowell. Guide to the literature of chemistry. N.Y.,Wiley,1927. Partial contents:—Books.—Periodicals.—Patents.—Indexes.—Libraries.—Procedure.—Apps.of bibl.,symbols,libraries, periodicals,organizations,book dealers,etc.

859. Gmelin,Leopold. Handbuch der anorganischen Chemie. Lpz.,Chemie, 1924– .8th ed.,by R.J.Meyer & others.

859.1. Holmes,Harry Nichols. Bibliography of colloid chemistry. Wash.,Nat. research council,1923. Mimeographed.

860. Jellinek,Karl. Lehrbuch der physikalischen Chemie. Stutt.,Enke,1914– .

860.1. Mellor,Joseph William. Comprehensive treatise on inorganic and theoretical chemistry. Lond.,Longmans,1922– .

861. Sohon,Julian Arell,& Schaaf,William L. Reference list of bibliographies: chemistry, chemical technology . . . since 1900. N.Y.,Wilson,1924.

862. Sparks,Marion Emeline. Chemical literature and its use. Urbana,Ill., Author,1921.2d ed.

863. Stillman,John Maxson. Story of early chemistry. N.Y.,Appleton,1924.

864. Young,James. Bibliotheca chemica. Glasg.[Priv.distributed]1906.2v. Library catalogue,by J.Ferguson.

H. 2. CHEMISTRY. PERIODICALS

865. Bibliographia chimica. Lpz.[1927]– . Pub.of Verein deutscher Chemiker & others.

865.1. British chemical abstracts. Lond.1924– . Continued from the journals of Chem.soc.(1847–)& Soc.of chem.industry(1882–).

866. Chemical abstracts. Easton,1907– . Continues *Rev.of Amer.chem.research.* Pub.of Amer.chem.soc. Cf.*List of periodicals abstracted . . . with key to library files.* Columbus,Ohio state univ.,1926.

868. Chemisches Zentralblatt. Ber.[1830]– . Pub.of Deutsche chem.Ges.

869. Deutsche chemische Gesellschaft,Berlin. Literatur-Register der organischen Chemie. Brns.1913– .

869.1. Jahresbericht über die Leistungen der chemischen Technologie. Lpz.,Wiegand,1856– .

870. Société chimique de France. Bulletin. Par.1858– .

I. NATURAL SCIENCE. GENERAL

871. Agassiz,Louis. Bibliographia zoologiae et geologiae. Lond.,Ray soc.,1848–54.4v.New ed.,by H.E.Strickland & W.Jardine.

[372. British museum(Nat.Hist.)Library. Catalogue. Lond.1903–15.5v. Suppl.1922– . By B.B.Woodward & others.]

[373. Linnean society of London. Library. Catalogue. Lond.1925.New ed.]

874. Meisel,Max. Bibliography of American natural history . . . 1769–1865. Brooklyn, Premier pub.co.,1924–26.2v.

J. GEOLOGY. MINERALOGY. PALÆONTOLOGY

(1. *Retrospective.*—2. *Periodicals*)

Cf. also Geography (*chap.* 4 *B*), *Prehistoric Archæology* (*chap.* 4 *C*) *; also nos.* 789 (36. *Mathews*), 790 (27. *Little*), 1099 (*nos.* 1 *&* 3), 1110, 1343 (*no.* 8.)

875. Crane,Walter Richard. Index of mining engineering literature. N.Y., Wiley,1909–12.2v.

876. Dana,James Dwight. System of mineralogy. N.Y.,Wiley,1914. App.by W.E.Ford,1916.

877. Emmons,William Harvey. Principles of economic geology. N.Y.,McGraw, 1918.

877.1. Ferrier,Walter Frederick. Annotated catalogue of . . . publications of the Geological survey of Canada. Ottawa,Taché,1920.

877.2. Fossilium catalogus. Ber.,Junk,1913– . Ed.by F.Frech.

878. Geikie,Archibald. Text-book of geology. N.Y.,Macmillan,1923.2v.4th ed.

878.1. Grabau,Amadeus William,& Shimer,Hervey Woodburn. North American index fossils, invertebrates. N.Y.,Seiler, 1909–10.2v.

879. Margerie,Emmanuel de,& others. Catalogue des bibliographies géologiques. Par.,Gauthier-Villars,1896. Auspices of Internat.geol.cong.

882. Redwood,Boverton,& others. Petroleum. Lond.,Griffin,1922.3v.4th ed.

883. Sparn,Enrique. Bibliografía de la geologia, mineralogia y paleontologia . . . Argentina. Cordoba,1920–22. (Acad.nac.de ciencias. *Miscelanea* 2,3,5.)

884. Zittel,Karl Alfred von. Grundzüge der Paläontologie(Paläozoologie). Mün.,Oldenbourg,1924– .6th ed.by F. Broili.

J. 2. GEOLOGY. MINERALOGY. PALÆONTOLOGY. PERIODICALS

885. Economic geology . . . [with]the American geologist. [Lancaster]1906– .

887. Geologen-Kalender. Lpz.1898– . Auspices of Deutsche geol.Gesellschaft.

888. Geological society of London. Library. Geological literature added. Lond.1895– .

889. Geologiska föreningen i Stockholm. Förhandlingar. Stockholm,1872–

890. Geologisches Zentralblatt. Lpz.[etc.1901]– .
891. Institute of metals,London. Journal. Lond.1909– .
892. International geological congress. 1st- ,1878– . Comptes rendus.
892.1. Iron and steel institute,London. Journal. Lond.[1871]– .
893. Mineralogical abstracts. Lond.1922– . Pub.of Mineralogical soc.
893.1. Revue de géologie. Liège,1920– . Auspices of Soc.géol.de Belgique & others.
894. Société géologique de France,Paris. Bibliographie des sciences géologiques. Par.1925– .
895. U.S.Bureau of mines. Bulletin. Wash.1910– .
896. U.S.Geological survey. Bulletin. Wash.1883– . Includes current bibl.of North Amer.geol.(cumulated for 1785–1918 by J.M.Nickles,in *Bull.*746–47)etc.

K. BIOLOGY. ZOOLOGY

(1. *Retrospective.—2. Periodicals*)

Cf. also Anthropology (chap. 4 *C); also nos.* 238, 790 (45. *West*), 1110, *etc.*

897. Bronn,Heinrich Georg,& others. Klassen und Ordnungen des Tierreichs. Lpz.,Winter,1880– .
898. Dean,Bashford,& others. Bibliography of fishes. N.Y.,Amer.mus.of nat. hist.,1916–23.3v.
898.1. Field museum of natural history,Chicago. Edward E.Ayer ornithological library. Catalogue. Chic.1926.2v.(Its *Zool.ser.*v.16.) By J.T.Zimmer.
899.Gage,Simon Henry. Microscope. Ithaca,Comstock,1925. 14th ed.
899.1. Handbuch der Biochemie. Jena,Fischer,1924–27.9v.2d ed. Ed.by C.Oppenheimer.
899.2. Herrick,Francis Hobart. Audubon the naturalist. N.Y.,Appleton,1917. 2v.
899.3. Hertwig,Oskar. Allgemeine Biologie. Jena,Fischer,1909.3d ed.
900. Holmes,Samuel J. Bibliography of eugenics. Berkeley,1924. (Cal.Univ. *Pubs.in zool.*25.)
901. Lankester,Edwin Ray,& others. Treatise on zoology. Lond.,Black,1900– .
902. Scudder,Samuel Hubbard. Nomenclator zoologicus . . . all generic names. Wash.1882. (U.S.Nat.mus.*Bull.*19.)
903. Sherborn,Charles Davies,& others. Index animalium. Camb.,Univ. press,1902– .
[904. Stehli,Georg. Das mikroskopische Schrifttum. Stutt.,Franckh,1926.]

K. 2. BIOLOGY. ZOOLOGY. PERIODICALS

905. Année biologique. Par.1897– . Pub.of Fédération des socs.de sciences nat.
906. Berichte über die wissenschaftliche Biologie. Ber.1926– .
907. Bibliographia genetica. Gravenhage,Nijhoff,1925– . Ed.by J.P.Lotsy & H.N.Kooiman. Covers pubs.to 1923. For current lit.,cf.*Resumptio genetica*, 1926– .
908. Bibliographia zoologica. Lpz.[etc.]1896– . Suppl.to *Zool.Anzeiger.* Ed.by Concilium bibliographicum,Zurich.
909. Bibliotheca zoologica. Lpz.1861–1923. Bibl.of 1846–60 by J.V.Carus & W.Engelmann. 1861.2v.—*Bibliotheca Zoologica* II,for 1861–80,by O.Taschenberg. 1887–1923.8v.
910. Biologia generalis. Vienna,1925– .
911. Biological abstracts. Menasha,Wis.[1926]– .
912.1. Ergebnisse der Biologie. Ber.1926– .
912.2. Quarterly review of biology. Balt.1926– .
913. Royal microscopical Society,London. Journal. Lond.1878– .

914. Wistar institute of anatomy and biology,Philadelphia. Bibliographic service. Phila.1917– . On cards. Cumulated annually,1922– .
915. Zoological record. Lond.1865– . Pub.of Zool.soc.of London.
916. Zoologischer Jahresbericht. Ber.1879– . Pub.of Naples Stazione zool.

L. BOTANY. AGRICULTURE. FORESTRY

(1. *Retrospective.*—2. *Periodicals*)

Cf. also nos. 1099 (32. *Conover*), 1110 (*nos.* 42–44), *etc.*

917. Bay,Jens Christian. Bibliographies of botany. [Jena,1909.] Repr.from *Progressus rei botanicae*,v.3.
918. Britten,James. Biographical index of British and Irish botanists. Lond., West,1893.
919. Green,Joseph Reynolds. History of botany,1860–1900. Ox.,Clarendon press,1909. Continuation of Sachs,J.von. *Gesch.der Botanik*,Mün.,1875.
[920. Güntz,Max. Handbuch der landwirtschaftlichen Litteratur. Lpz.,Voigt, 1897–1902.3v.]
920.1. Harvard university. Arnold arboretum. Library. Catalogue. Camb. 1914–17.2v.(Its *Pub.*no.6.) By E.M.Tucker.
921. Jackson,Benjamin Daydon. Guide to the literature of botany. Lond., Longmans,1881.
[922. Krok,Thorgny Ossian Bolivar Napoleon. Bibliotheca botanica suecana. Stockholm,Almqvist[1925].]
923. Pritzel,Georg August. Thesaurus literaturae botanicae. Lpz.,Brockhaus, 1872–[77].7 pt. New ed.
924. Rehder,Alfred. Bradley bibliography; a guide to the literature of the woody plants of the world. Camb.,Riverside press,1911–18.5v.
925. Rohde. Old English gardening books. Lond.,Hopkinson,1924.illus.
926. Rohde,Eleanour Sinclair. Old English herbals. Lond.,Longmans,1922. illus.
[927. Rothamsted experimental station,Harpenden,England. Library. Catalogue of the printed books on agriculture[1471–1840]. [Aberdeen,Univ. press,1926?] By M.S.Aslin.]
[928. Royal agricultural society of England. Library. Catalogue. Lond., 1918. By G.E.Mainwaring.]
929. Strasburger,Eduard. Text-book of botany; rewritten by H. Fitting[& others]. Lond.,Macmillan,1921.5th Eng.ed.,from 14th Ger.ed.,by W.H.Lang.
[930. Unwin,Arthur Harold. International forest bibliography. Lond.,Forest lover's lib.,1921.]
931. Warming,Eugenius,& Vahl,Martin. Œcology of plants. Ox.,Clarendon press,1909. Repr.,1925. Trans.by P.Groom & I.B.Balfour.

L. 2. BOTANY, ETC. PERIODICALS

932. Agricultural index. N.Y.1917– . Cumulative.
933. Botanisches Centralblatt. Leiden[etc.]1880– .
934. Botanisk Tidsskrift. Kjøb.1866– . Pub.of Bot.forening.
934.1. International review of the science and practice of agriculture. Rome,1910– . Pub.of Internat.inst.of agric.
935. Just's Botanischer Jahresbericht. Ber.1874– . Earlier title: *Botanischer* etc.
936. Review of applied mycology. Kew,Imperial bureau of mycology,1922– .
937. Société botanique de la France. Bulletin,Par.1854– .
938. Torrey Botanical Club,New York. Bulletin,N.Y.1870– .
939. U.S.Dept.of agriculture. [Card index to the publications.1899– .]
940. ——. Bulletin,Wash.1894–1912.

941. ——. Library. Bibliographical contributions. Wash.[1919]- .

942. —— ——. List of serials currently received. Wash.1922.(Dept.*Circular* 187.)

943. ——. Office of experiment stations. Experiment station record. Wash. 1890- .

M. PHYSIOLOGY. MEDICINE

(1. *Retrospective.*—2. *Periodicals*)

Cf. also Physical anthropology (*chap.* 4 *C*) ; *also nos.* 36, 51, 1110 (*no.* 51), 1424 (19. *Osler*), 1578.

944. Abt,Isaac Arthur,ed. Pediatrics, By various authors. Phila.,Saunders, c1923–26.8v.& index.

945. Barker,Lewellys Franklin,& others. Endocrinology and metabolism. N.Y.,Appleton,1922.5v.

946. Bayliss,William Maddock. Principles of general physiology. Lond.,Longmans,1924.4th ed.

947. Blogg,Minnie Wright,& others. Classified bibliography of the publications of Sir William Osler. (In Internat.assoc.of medical museums.*Bull.*no.9,1926.)

948. Buchanan,Robert Earle. General systematic bacteriology. Balt.,Williams,1925.

949. Callisen,Adolph Carl Peter. Medizinisches Schriftsteller-Lexikon. Cop. 1830–45.33v. Covers 1750–1825.

950. Dictionnaire encyclopédique des sciences médicales. Par.,Asselin, 1864–89.100v. Ed.by J.Raige-Delorme & others.

951. Frankenberger,Charles. How to consult medical literature. (In *Spec.lib.* 17(1926)p.167–71.)

952. Garrison,Fielding Hudson. Introduction to the history of medicine. Phila.,Saunders,1922.3d ed.

953. Graefe,Alfred Karl,& Saemisch,Theodor. Handbuch der gesamten Augenheilkunde. Lpz.,Engelmann,1912– .3d ed.,by C.Hess.

954. Hahn,Victor Lucien. Essai de bibliographie médicale. Par.,Steinheil,1897.

955. Halban,Joseph,& Seitz,Ludwig,eds. Biologie und Pathologie des Weibes. Ber.,Urban,1924–25.8v.

956. Handbuch der normalen und pathologischen Physiologie. Ber., Springer,1925– . By A.Bethe & others.

957. Handbuch der pathogenen Mikroorganismen. Jena,Fischer,1927– .3d ed. By W.Kolle & others.

958. Helmholtz,Hermann Ludwig Ferdinand von. Treatise on physiological optics. Rochester,Optical soc.of Amer.,1924–25.3v. From 3d Ger.ed.,by J.P.C. Southall.

958.1. Kaufmann,Eduard. Lehrbuch der speziellen pathologischen Anatomie. Ber.,Reimer,1911.2v.6th ed.

959. Keibel,Franz,& Mall,Franklin Paine,eds. Manual of human embryology. Phila.,Lippincott,1910–12.2v.

959.1. Kingsley,John Sterling. Outlines of comparative anatomy of vertebrates. Phila.,Blakiston,c.1926.

960. Ploucquet,Wilhelm Gottfried. Initia bibliothecae medico-practicae. Tüb.,Cotta,1793–97.8v. Continued by his *Bibliotheca medico-practica recentior.* 1799–1803.4v.New ed.,*Lit.med.digesta*,1808–09,4v.& suppl.1814.

962. Richet,Charles Robert. Dictionnaire de physiologie. Par.,Alcan,1895– .

963. Spezielle Pathologie und Therapie. Wien,Hölder,1894–1913.24v. Ed.by H.Nothnagel & others.

964. U.S.Surgeon-general's office. Library. Index-catalogue. Wash.1880–95. 16v.& 2d ser.1896–1916.21v.& 3d ser.,1918– . Cf.esp.its list of bibls.

M. 2. PHYSIOLOGY. MEDICINE. PERIODICALS

964.1. American journal of diseases of children. Chic.1911– .

965. American medical association. Journal,Chic.1883– .

966. Anatomischer Anzeiger. Jena,1886– . Pub.of Anat.Gesellschaft.

967. Berichte über die gesamte Physiologie und experimentelle Pharmakologie. Ber.1920– .

967.1. Black,Arthur Davenport. Index of the periodical dental literature . . . English . . . 1911–15. Buffalo,Dental index bur.,1921. Suppl.(for 1839–)1923– .

968. British medical journal. Lond.1857– . Pub.of British medical assoc.

968.1. Centralblatt für Bakteriologie,Parasitenkunde und Infektionskrankheiten. Jena,1887– .

969. Endocrinology. Los Angeles,1917– .

970. Ergebnisse der allgemeinen Pathologie und pathologischen Anatomie. Wiesbaden,1895– .

971. Ergebnisse der Physiologie. Wiesbaden,1902– .

971.8. Physiological abstracts. Lond.[1916]– . By Physiol.soc.& others.

972. Quarterly cumulative index medicus. Chic.,Amer.med.assoc.,c1927– .

972.1. Schmidts Jahrbücher der in- und ausländischen gesammten Medicin. Lpz.1834– . Earlier title: *Jahrbücher* etc.

973. Surgery,gynecology and obstetrics. International abstract of surgery. Chic.1913– .

974. U.S.Surgeon-general's office. Library. Alphabetical list of abbreviations of medical periodicals employed in the Index-catalogue. Wash.1916.

974.1. Zentralblatt für die gesamte Neurologie und Psychiatrie. Ber., 1910– .

N. GENERAL TECHNOLOGY, ENGINEERING, ETC.

(1. *Retrospective*.—2. *Periodicals*)

Cf. also nos. 50, 69, 290.1, 302, 330, 1099 (31. *Weber*), 1110, *etc.*

975. American society of civil engineers,New York. Library. Catalogue. N.Y.[1900]–02.2v. By C.W.Hunt.

975.1. Brown,Raymond Newell. Recent technical bibliographies. (In *Special Libraries* Feb.–Mar.1924,Mar.1925 (suppl.)&*L.J.*Mar.1 & May 1,1926.)

[975.2. Germany. Patentamt. Bibliothek. Katalog. Ber.1923.3v.]

[975.3. Great Britain. War office. Library. Catalogue. Lond.[1906]–12.3v. Suppls.,1913– .]

976. Handbuch der Ingenieurwissenschaften. Lpz.,Engelmann,1879– .

976.1. Krais,Paul. Werkstoffe; Handwörterbuch der technischen Waren und ihrer Bestandteile. Lpz.,Barth,1921.3v.

976.5. Lueger,Otto,ed. Lexikon der gesammten Technik. Stutt.,Deutsche Verlags-Anstalt,1926– .3d ed.by E. Frey.

977. Mead,Daniel Webster. Contracts, specifications and engineering relations. N.Y.,McGraw,1916.

977.1. Permanent international association of navigation congresses. Rivers,canals and ports; bibliographic notes. Brux.,Impr.des travaux publics [etc.]1908. Suppls.1912,1919,1924.

977.2. Pohler,Johann. Bibliotheca historico-militaris. Lpz.,Lang [1887]–99.4v.

978. Quartermaster association. Book dept. Descriptive catalogue of selected military literature. Wash.,c.1924. By J.A.Moss & others.

978.1. Scharfenort,Louis von. Quellenkunde der Kriegswissenschaften seit 1740. Ber.,Mittler,1910– .

978.11. Smith,Julian F. Patent literature. (In *Spec.lib.*18(1927)p.47–50.)

978.2. U.S.Army service schools,Fort Leavenworth. Library. Library catalogue. Fort Leavenworth,1927.

N. 2. TECHNOLOGY. PERIODICALS

979. Army quarterly [with]the United service magazine. Lond.1920– .

979.1. Beiträge zur Geschichte der Technik und Industrie. Ber.1909– . Pub.of Verein deutscher Ingenieure.

980. Engineering index. N.Y.,Amer.soc.of mechanical engineers, 1907– . Earlier nos.in *Engineering magazine.* Suppl.by *Engineering weekly card index service*,1928– .

981. Industrial arts index. N.Y.1914– . Cumulative.

981.1. Institution of civil engineers,London. Engineering abstracts.Lond. 1919– . Earlier title: *Abstracts of papers*,etc. For 1875–1916,cf.its *Minutes.*

982. New York. Engineering societies' library. Catalogue of technical periodicals,libraries in the city of New York and vicinity. N.Y.1915. By A.J. Gates & others.

982.1. Newcomen society for the study of the history of engineering. Transactions. Lond.1922– .

983. Pittsburgh,Carnegie library. Technical indexes and bibliographies appearing serially. (In its *Monthly bull.*June,1910. Also reprinted.)

983.1. Repertorium der technischen Journalliteratur; hrsg.im Kaiserlichen Patentamt. Ber.1856–1909. Covers 1823–1908. Earlier title *Repertorium der technischen Literatur.* Continued as *Fortschritte der Technik*,1909–13.

984. Technical book review index . . . by the Technology department of the Carnegie library of Pittsburgh. Pittsb.1917– .

985. Technischer Literaturkalender. Mün.[1918]– .

986. U.S.National advisory committee for aeronautics. Bibliography of aeronautics,1909/1916– . Wash.1921– . Continues *Smithsonian miscellaneous collections*,v.55.

986.1. Who's who in engineering. Lond.,Compendium pub. co.[1920]– .

986.2. Who's who in engineering. N.Y.,Leonard,c1922– .

CHAPTER VII

LIBRARY SCIENCE

Cf. also General works (*chap.* 1), *Auxiliary sciences* (*chap.* 4 *E*), *Book-prices* (*chap.* 9 *A*), *Union catalogues* (*chap.* 11 *A*), *Bibliographical journals and series* (*chap.* 11 *D*), *Library history and resources* (*chap.* 15); *also nos.* 49, 69, 73.1, 858, 1434, 1451, 1453, 1482.1.

987. Allan,Philip Bertram Murray. Book-hunter at home. N.Y.,Putnam, 1922.2d ed.

988. American library association. Survey of libraries in the U.S.Chic.1926–27.4v.

989. ——. Text-books. Chic.1926– . Partial contents:—Flexner,J.M. Circulation.—Wyer,J.I. Reference.—Mann,M. Cataloging & classification.(In prep.) —Drury,F.K.W. Book selection & order work.(In prep.)

990. ——. Committee on code for classifiers. Code for classifiers. Ms.1914. By W. S. Merrill & others.

991. ——. Committee on library extension. Library extension. Chic.1926.

992. Aungerville,Richard. Love of books; the Philobiblon of Richard de Bury. Lond.,Chatto,1925. Trans.by E. C. Thomas. Also other eds.

993. Bishop,William Warner. Practical handbook of modern library cataloging. Balt.,Williams,1924.2d ed. Repr.,1927.

[994. Bliss,Henry E. Organization of knowledge and the classification of books. In preparation.]

994.1. Bostwick,Arthur Elmore. American public library. N.Y.,Appleton, 1923.3d ed.

994.2. British museum. Dept.of printed books. Rules for compiling the catalogues. Lond.1927.

994.3. Buck,Mitchell Starrett. Book repair. Phila.,Brown,1918.

995. Catalog rules; author and title entries. Chic.1908. By Amer.and British library assocs.

995.6. Cole,George Watson. Book-collectors as benefactors of public libraries. (In Bibl.soc.of Amer.*Papers* 9(1915)p.47–110.)

995.7. ——,& others. Photostat in bibliographical work. (Ibid.15(1921)p.1–46.)

996. Currier,Thomas Franklin,& others. Selective cataloging. N.Y.,Wilson, 1928. Ed.by H.B.Van Hoesen.

997. Cutter,Charles Ammi. Expansive classification. Bost.,Cutter, 1891– .

998. ——. Rules for a dictionary catalog. Wash.,Govt.print.off.,1904.4th ed.

998.1. Delisle,Leopold Victor. Instructions . . . pour la mise et le maintien en ordre des livres. Par.,Champion[1910]4th ed.

999. Dewey,Melvil. Decimal clasification and relativ index. Lake Placid club, N.Y.1927.12th ed. Also an abridged ed.

1000. Dibdin,Thomas Frognall. Bibliomania. Lond.,Longmans,1842.New ed.

1000.1. Dickey,Philena Augusta. Suggestions for the care and use of pamphlets and clippings. N.Y.,Wilson,1922.2d ed.

1001. Ebert,Friedrich Adolf. Training of the librarian. Woodstock,Vt.,Elm tree press,1916. Trans.from the German by S.Nachman.

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1026. ——. Subject subdivisions. Wash.1924.6th ed.

1027. ——. Classification division. Classification. Class A– . Wash.1915– . & *Outline scheme*,1926.

1027.1. ——. Division of maps and charts. Notes on the cataloging,care,and classification of maps. Wash.1915. By P.L.Phillips.

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CHAPTER VIII

BIBLIOGRAPHIES OF REFERENCE BOOKS

Cf. also General works (*chap.* 1), *Reference works in special subjects* (*chaps.* 4–6), *Special bibliographies* (*chap.* 9), *Encyclopædias and biographical dictionaries* (*chaps.* 10–11 *A*), *Bibliographies of bibliographies* (*chap.* 11 *C*), *Bibliographical journals and series* (*chap.* 11 *D*) ; *also nos.* 5, 65, 72, 1447, 1453, 1620.

1032. American library association. "A.L.A." index. Bost.1905.2d ed. Suppl., Chic.1914.

1032.1. Berlin,Universität. Bibliothek. Schriften zur Einführung in die Benutzung der . . . Bibliothek. Ber.,Reimer,1913– .

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1037. Handbook series. N.Y.,Wilson,1914– .
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1038.1. John Crerar library,Chicago. List of books in the reading room. Chic. 1909.
1039. ——. List of cyclopedias and dictionaries . . . list of directories. Chic.1904.
1039.1. Morley,Linda H.& Kight,Adelaide C. Mailing list directory and classified index to trade directories. N.Y.,McGraw,1924.
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1041. Reference shelf;briefs,bibliographies,debates,study outlines. N.Y.,Wilson,1922– .
1041.1. Shepard,Frederick Job. Index to illustrations. Chic.,A.L.A.,1924.
1042. Vienna. Nationalbibliothek. Verzeichnis der Handbibliothek des Druckschriftenlesesaales. Wien,1923. By F.Koch.

CHAPTER IX

SPECIAL BIBLIOGRAPHIES

A. MISCELLANEOUS

Cf. Lists of best books, rare books, etc., on special subjects (*chaps.* 4–6), *and in special countries* (*chap.* 10),*Reference books* (*chap.* 8) ; *General library catalogues* (*chap.* 11 *A*), *General lists of early printed books* (*chap.* 13), "*Fine printing*" *and book decoration* (*chaps.* 12–13), *Library "treasures"* (*chap.* 15); *also nos.* 1 (16. *Bascom*), 65, 172, 987, 1018, 1030.2, 1110 (*no.* 73), 1376, 1388, 1401, 1424–27, 1431.

1042.1. American book prices current. N.Y.1895– .
1042.2. American library association. Foreign book lists. Bost.[etc.]1907– .
1042.3. Annuaire des ventes de livres. Par.[1921]– .
1043. Aspinwall,Marguerite. Everyday bookshelf . . . collation of the nine best known lists of the world's 100 best books. N.Y.,Putnam,1927.
1044. Barbier,Antoine Alexandre. Dictionnaire des ouvrages anonymes. Par.,Daffis,1872–79.4v.3d ed. Cf.no.1052.
1045. Bethléem,Louis. Romans à lire & romans à proscrire. Par.,Rev.des lectures,[1920].
1046. Betten,Francis Sales. Roman index of forbidden books. Chic.,Loyola univ.press,1925.
1047. Bloom,James Harvey. English tracts, pamphlets and printed sheets; a bibliography. Lond.,Gandy,1922– .
1047.1. Bogeng,Gustav Adolf Erich. Streifzüge eines Bücherfreundes, Weimar,Gesellsch.d.Bibliophilen,1915.2v.
1048. Book-auction records. Lond.1903– .
1049. Book-prices current. Lond.1888– .
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1051. British museum. Thomason collection. Catalogue of the pamphlets, books,newspapers and manuscripts . . . collected . . . 1640–61. Lond.1908.2v.
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1053. BRUNET,JACQUES CHARLES. Manuel du libraire et de l'amateur de livres. Par.,Didot,1860–65.6v.5th ed. Suppl.,by P.Deschamps & G.Brunet,1878–80. 2v.& suppl. *Dictionnaire de géographie*,1870.

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1054.2. CORNS,ALBERT REGINALD,& SPARKE,ARCHIBALD. Bibliography of unfinished books in the English language. Lond.,Quaritch,1915.

1055. CUSHING,WILLIAM. Anonyms; a dictionary. Camb.,Cushing,1890.

1055.1. ——. Initials and pseudonyms. N.Y.,Crowell,1885–88.2v.

1056. DEBURE,GUILLAUME FRANÇOIS. Bibliographie instructive. Par.,Debure, 1763–82.10v.

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1059.1. DICKINSON,ASA DON. One thousand best books . . . variorum list. Garden City,Doubleday,1924.

1059.2. ——. Best books of our time(1901–25). N.Y.,Doran,1928.

1059.3. DRUJON,FERNAND. Livres à clef. Par.,Rouveyre,1888.2v.

1059.4. DUFF,EDWARD GORDON. English printing on vellum to . . . 1600. Aberdeen,1902. (Bibl.Soc.of Lancashire *Pub.* 1.)

1060. EBERT,FRIEDRICH ADOLF. Allgemeines bibliographisches Lexikon. Lpz., Brockhaus,1821–30.2v. Eng.transl.,by A.Browne. Ox.,Univ.press,1837.4v.

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1064. HALKETT,SAMUEL,& LAING,JOHN. Dictionary of anonymous and pseudonymous English literature. Edin.,Oliver,1926– . New ed.,by J.Kennedy & others.

1065. HOLZMANN,MICHAEL,& BOHATTA,HANS. Deutsches Anonymen-Lexikon. Weimar,Gesellschaft der Bibliophilen,1902–11.6v.

1066. HOUBEN,HEINRICH HUBERT. Verbotene Literatur. Ber.,Rowohlt,1924– .

1067. INTERNATIONAL INSTITUTE OF INTELLECTUAL CO-OPERATION,PARIS. List of notable books published in different countries during the year 1924– . Par., Presses universitaires,1926– . Annual.

1068. JAHRBUCH DER BÜCHERPREISE. Lpz.1907– .

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1070. LÜTHI-TSCHANZ,KARL JAKOB. Bücher kleinsten Formates. Bern,Büchler,1924.

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1071.1. MEDINA,JOSÉ TORIBIO. Diccionario de anónimas y seudónimos hispanoamericanos. Buenos Aires,Impr.Universidad,1925.2v.

1071.2. MELZI,GAETANO. Dizionario di opere anonime e pseudonime di scrittori italiani. Mil.,Piroia,1848–59.3v. Suppls.1887 & 1888 by G. Passano & E. Rocco.

1071.8. NISARD,CHARLES. Histoire des livres populaires, ou de la littérature du colportage. Par.,Amyot.1854.2v.

1072. Pearl,Raymond. To begin with; being prophylaxis against pedantry. N.Y.,Knopf,1927. Cf.his article in *Scientific monthly* 21(1925)p.33–44.

1072.1. Pearson,Edmund Lester. Book-reviews. (In N.Y.Pub.lib.*Bull.*20 (1916)p.813–38,873–94. Also reprinted.)

1073. Peet,Louis Harman. Who's the author? N.Y.,Crowell,c1901.

1074. Pettersen,Hjalmar Marius. Norsk anonym- og pseudonym-lexikon. Kristiania,Steen,1924.2d ed.

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1080. Slosson,Preston. How to review books. (In *Independent* 104(1920)p. 395–96.)

1081. Sonnenschein,William Swan. Best books . . . (about 100,000). Lond., Routledge,1910– .3d ed.

1082. Thomas,Ralph. Aggravating ladies . . . the pseudonym of "a lady" . . . by Olphar Haust [pseud.] Lond.,Quaritch,1880.

1083. Uriarte,José Eugenio de. Catálogo . . . de obras anónimas y seudónimas de autores de la Compañia de Jesús. Madr.,Rivadeneyra,1904–16.5v.

1084. Weller,Emil Ottokar. Die falschen und fingirten Druckorte. Lpz., Engelmann,1864.2v.2d ed.

1085. Williams,Reginald Gordon. Manual of book selection. Lond.,Grafton, 1922.2d ed.

B. GOVERNMENT PUBLICATIONS

(1. *General.*—2. *U.S.*—3. *Foreign*)

Cf. also lists of government publications in special subjects (*chaps.* 4–6, *esp. Social sciences*), *General periodicals* (*chap.* 11 *C*), *Periodicals of national and general bibliography* (*chaps.* 10 & 11 *D*)*; also nos.* 1 (23. *Wyer*), 128, 172, 384.1, 887, 1453 (20. *Clarke*).

1087. American library in Paris. Reference service on international affairs. Official publications of European governments. Par.[1926]Mimeographed. By J.Meyer.

1088. Childs,James Bennett. Account of government document bibliography. Wash.,Govt.print.off.1927.

1089. League of nations. Handbook of international organizations. Gen.1926.

1090. ——. Publications issued. Gen.1924.

1091. ——. Subject list of documents distributed. Gen.[1923?]– .

[1092. List of the serial publications of foreign governments. In preparation. Auspices of Amer.council of learned socs.,Amer.lib.assoc.,Nat.research council,& Laura Spelman Rockefeller memorial(Ed.comm.,J.T.Gerould,H.H. B.Meyer,& H.M.Lydenberg).]

1093. Myers,Denys P. International documentation, its classification and purpose. (In *Libraries* 32(1927)p.107–13.)

B. 2. GOVERNMENT PUBLICATIONS. U. S.

1094. Ames,John Griffith. Comprehensive index to the publications of the U.S.government,1881–93. Wash.1905.2v. (58th Cong.2d sess.House. Doc.754.)

1095. Bates,Frank Greene. Municipal ordinances and documents. (In *Spec. lib.*6(1914)p.11–20.)

1096. Bowker,Richard Rogers. State publications; a provisional list. N.Y., Pub.weekly,1899–1909.4v.

1097. Everhart,Elfrida. Handbook of U.S.public documents. Minneapolis, Wilson,1910.

1098. Hasse,Adelaide Rosalie. Index of economic material in documents of the States of the United States. Wash.1907–21.13v. (Carnegie inst.*Pub*.85.)

1099. Institute for government research,Washington. Service monographs of the U.S.government. Balt.,Johns Hopkins press,1918– . Partial contents:—1. Geol.survey.—3. Powell,F.W. Bur.of mines.—5. Bernhardt,J. Tariff commission.—7. Holt,W.S. Federal trade commission.—9. Weber,G.A. Weather bureau.—14. Smith,D.H. Bur.of educ.—16. Weber,G.A. Coast & geodetic survey.—18. Bernhardt,J. Interstate commerce commission.—29. Schmeckebier, L.F. Bur.of foreign & domestic commerce.—31. Weber,G.A. Patent office.—32. Conover,M. Office of experiment stations.—35. Weber,G.A. Bureau of standards.—36. Schmeckebier,L.F. Government printing office.—39. Weber, G.A. Naval observatory.

1099.1. Morrison,Hugh Alexander. Bibliography of the official publications of the Confederate states. (In Bibl.soc.of Amer.*Proc*.3(1909)p.92–132.)

1100. New York,Public library. List of works relating to city charters,ordinances and collected documents. (In its *Bull*.16–17(1912–13)*passim*.)

1101. Poore,Benjamin Perley. Descriptive catalogue of the government publications [1774–1881]. Wash.1885. (48th Cong.2d.sess. Senate. Misc.doc.67.)

1102. Reece,Ernest James. State documents for libraries. Urbana,1915. (Illinois.Univ.*Bull*.v.12,no.36.)

1102.1. Shearer,Augustus Hunt. List of documentary material . . . state constitutional conventions,1776–1912. Chic.1915. (Newberry library. *Bull*.4.)

1103. Swanton,Walter Irving. Guide to U.S.government publications. (U.S. Bur.of educ. *Bull*.1918 no.2.)

1104. U.S.Congress. Senate. Library. Index of congressional committee hearings. Wash.1927. Cf.also its *Catalogue*,1924.

1105. U.S.Library of Congress. Division of documents. Monthly check-list of state publications. Wash.1910– .

1106. U.S.Superintendent of documents. Catalogue of the public documents. Wash.1896– .

1107. ——. Checklist of U.S.public documents,1789–1909. Wash.1911.3d ed.

1108. ——. Index to the subjects of the documents and reports . . . 54th congress– . Wash.1897– .

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1112. United States daily. Wash.1926– . Annual index.

1112.1. Wroth,Lawrence Counselman. Description of federal public documents. White Plains,Wilson,1916.

B. 3. GOVERNMENT PUBLICATIONS. FOREIGN

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1114. BURPEE,LAWRENCE JOHNSTONE. Check-list of Canadian public documents. (In Bibl.soc.of Amer.*Papers* 8(1914)p.51–56.)
1115. CANADA. DEPT.OF PUBLIC PRINTING AND STATIONERY. Price list of government publications,Ottawa,1926– . Monthly suppl.,1928– .
1115.1. CHILDS,JAMES BENNETT. Hispanic American government documents in the Library of Congress. (In *Hispanic Amer.hist.rev.*6(1926)p.134–42.)
1115.2. GERMANY. REICHSMINISTERIUM DES INNERN. Monatliches Verzeichnis der . . . amtlichen Druckschriften.Ber.1928– .
1116. GERMANY. REICHSTAG. BIBLIOTHEK. Katalog. Ber.,Trowitzsch,1890–99. 5v. Later suppls.
1117. GREAT BRITAIN. PARLIAMENT. HOUSE OF COMMONS. General alphabetical index to the bills,reports,estimates,accounts and papers. . . . [1801]– . Lond. 1853– .
1118. —— ——. Parliamentary papers; list . . . with a general alphabetical index. Lond.1911– . (= *Numerical list & index*,etc.)
1119. ——. PERMANENT CONSULTATIVE COMMITTEE ON OFFICIAL STATISTICS. Guide to current official statistics. Lond.1923– .
1120. ——. STATIONERY OFFICE. Catalogue of works(other than Parliamentary papers & acts). Lond.1921. Rev.ed. Price list.
1121. —— ——. His Majesty's Stationery office,1786–1925. Lond.1925. (= *Brief guide to govt.pubs.*)
1122. —— ——. Monthly circular of new publications. Lond.1919– .
1123. —— ——. Monthly list of government publications. Lond.1922– . Cumulated(e.g.Jan.–June 1927)as *Consolidated list.*
1124. ITALY. MINISTERO DELLE FINANZE. Pubblicazioni edite dallo stato o col suo concorso(1861–1923). Roma,Libreria dello stato,1924.
1125. KING,FIRM,LONDON. Catalogue of parliamentary papers,1801–1900,with a few of earlier date. Lond.1904. Suppls.1912,1922.
1126. LEES-SMITH,HASTINGS BERTRAND. Guide to parliamentary and official papers. Lond.,Oxford univ.press.,1924.
1127. PARIS. IMPRIMERIE NATIONALE. Catalogue des publications mises en vente. Par.1926.
1128. ROYAL COLONIAL INSTITUTE. LIBRARY. Overseas official publications. Lond.1927– .
1129. SCHWIDETZKY,GEORG. Deutsche Amtsdrucksachenkunde. Lpz.1927. (*Z.B. Beiheft* 59.)
1129.1. WELLING,BEATRICE W. Canadian federal documents. (In A.L.A.*Bull.*19 (1925)p.385–90.)

C. PERIODICALS

(1. *Lists.*—2. *Indexes*)

Cf. also indexes and abstracts and lists of periodicals in special subjects (chaps. 4–6), *Bibliographical journals (chap.* 11 *D) ; also nos.* 4 (*Brigham*), 5, 789 (3. *Cobb*), 983, 1032, 1035, 1110 (*no.* 36), 1424 (17. *Bosanquet*), 1435 (*no.* 1), 1463 (6. *Faxon*).

1130. R.ACCADEMIA DEI LINCEI,ROME. BIBLIOTECA. Elenco alfabetico delle pubblicazioni periodiche esistenti nelle biblioteche di Roma e relative a scienze morali,storiche,filologiche,belle arti,ecc. Roma,Pontificio ist.biblico,1914.
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1131. ANNUAIRE DE LA PRESSE FRANÇAISE. Par.1880– .
1132. ANNUAIRE DES JOURNAUX,revues et publications périodiques publiés à Paris. Par.1897– .

1133. Ayer & Sons' American newspaper annual and directory. Phila.1880– .

1134. Beer, William. Checklist of American periodicals 1741–1800. (In Amer. antiquarian soc.*Proc.*32(1922)pt.2,p.330–45. Also reprinted.)

1135. Beutler, Johann Heinrich Christian. Allgemeines Sachregister über die wichtigsten deutschen Zeit- und Wochenschriften. Lpz.1790.

1136. Brigham, Clarence S. Bibliography of American newspapers,1690–1820. (In Amer.antiquarian soc.*Proc.*n.s.v.23–37(1913–27)*passim.* Separate pub. announced.) Indicates location of copies.

1137. Cannons, Harry George Turner. Classified guide to 1700 annuals, directories, calendars & year books. Lond.,Grafton,1923.

1138. Clark, Alvan Witcombe. Check list of indexed periodicals. N.Y.,Wilson,1917.

1139. Columbia university. Library. Law library. Serials of an international character. N.Y.1921. (Inst.of internat.educ.*Bull.*2d ser.no.3.)

1140. Crane, Ronald Salmon,& others. Census of British newspapers and periodicals 1620–1800. (In *Studies in philology* 24(1927)no.1. Also pub.separately.)

1141. Deutscher Zeitschriftenkatalog. Lpz.1865– . Earlier title: *Deutscher Journal-Katalog.*

1142. Diesch, Carl. Bibliographie der germanistischen Zeitschriften. Lpz., Hiersemann,1927. Pub.for Modern language assoc.of Amer.

1143. Hatin, Louis Eugène. Bibliographie historique et critique de la presse périodique française. Par.,Didot,1866.

1143.1. Hartzenbusch é Hiriart, Eugenio. Apuntes para un catálogo de periódicos madrileños . . . 1661–1870. Mad.,Rivadeneyra,1894.

1144. Homer, Thomas Johnston. Guide to serial publications . . . current in Boston,Cambridge,and vicinity. Bost.,Pub.library,1922– .

1144.1. New York. Public library. List of Russian,other Slavonic and Baltic periodicals. (In its *Bull.*20(1916)p.339–72. Also reprinted.) By H.Rosenthal.

1144.2. Newspaper press directory. Lond.[1846]– .

1145. Phelps, Edith M.,& Ball, Eleanor E. Periodicals of international importance. N.Y.,Wilson,1926.

1146. Prussia. Auskunftsbureau der deutschen bibliotheken. Gesamtverzeichnis der ausländischen Zeitschriften. Ber.1927– .New ed.

1147. Schottenloher, Karl. Flugblatt und Zeitung. Ber.,Schmidt,1922.

1148. Severance, Henry Ormal. Guide to the current periodicals and serials of the U.S.and Canada. Ann Arbor,Wahr,1920.4th ed.

1149. Stock, Leo Francis. List of American journals . . . humanistic and social sciences. (In Amer.council of learned socs.*Bull.*4(June,1925)p.56–82. Also repr.)

1150. Times, London. Tercentenary handlist of English & Welsh newspapers, magazines & reviews. Lond.1920.

1151. Union list of serials in the libraries of the U.S.and Canada. N.Y.,Wilson,1927. Ed.by W.Gregory.

1152. Walter, Frank Keller. Periodicals for the small library. Chic.,A.L.A., 1928.5th ed.

1153. Willing's press guide and advertiser's directory. Lond.1874– .

C. 2. PERIODICAL INDEXES

1154. Annual library index. N.Y.1906–11. Continuation of *Annual literary index*(1893–1905).

1155. Annual magazine subject-index. Bost.1909– . Suppl.to *Magazine Subject-index*,1908.

1155.1. Current magazine contents. Wichita,Kans.,1928– .

1156. International index to periodicals. N.Y.1921– . Formerly *Readers' guide,Supplement*(for 1907–19).

1157. Internationale Bibliographie der Zeitschriftenliteratur. Lpz. 1897– .

[1157.1. Martin,André. Catalogue de toutes les tables générales de matières des revues . . . de France. Par.,Champion,1926– .]

1158. New York times index. [N.Y.1913]– . Earlier series,1860– .

1159. Nijhoff's index op de Nederlandsche periodieken van algemeenen inhoud. Gravenhaage,1910– .

1160. Poole's index to periodical literature,1802–81. Bost.,Houghton,1891.2v. Rev.ed. Suppls.c1887–1908.5v. By W.F.Poole & W.I.Fletcher. Continued by:

1161. Readers' guide to periodical literature. Minneapolis[etc.]1901– .

1162. Subject index to periodicals,1915– . Lond.,Library assoc.,1919– .

1163. Times,London. Official index. Lond.1907– . For earlier years(1791–) cf.*Palmer's Index*,Lond.1868– .

1164. Welland,Jennie. The published newspaper index. (In L.J.49(1924)p. 177–78.)

D. PUBLICATIONS OF SOCIETIES, ETC. DISSERTATIONS

Cf. also periodicals, societies, and theses in subject bibliography (*chaps.* 4–6), *and national bibliographies* (*chap.* 10); *also nos.* 129.1, 362, 435, 634.1, 677, 789 (58. *Handbook*), 790 (12 *etc., Hull*), 829, 887.

1164.1. R.Accademia dei Lincei,Rome. Biblioteca. Elenco bibliografico delle accademie,società . . . ecc.,corrispondenti con la Reale accademia dei Lincei, e indici delle loro pubblicazioni. Roma,1908.

1164.2. K.Akademie der Wissenschaften,Vienna. Verzeichnis der . . . herausgegebenen oder subventionierten Schriften. Wien,Hölder,1915.

1164.21. Annuario degli istituti scientifici italiani. Bol.,1918– .

1164.3. Bibliographie annuelle des travaux historiques et archéologiques publiés par les sociétés savantes de la France. Par.1906– . Covers 1901– . Auspices of French Min.of pub.instruction.

1164.4. Bowker,Richard Rogers. Publications of . . . American scientific, literary,and other societies. N.Y.,Pub.weekly,1899.

1165. Carnegie institution of Washington. Handbook of learned societies and institutions;American. Wash.1908.

1165.1. Catalogus van academische geschriften in Nederland en Nederlandsch Indië. Utrecht,Nederlandsche vereeniging van bibliothecarissen,1924– .

1166. Deniker,Joseph. Bibliographie des travaux scientifiques . . . publiés par les sociétés savantes de la France . . . jusqu'en 1888. Par.,Impr.nat.,1916– . (France. Min.de l'instruction pub. *Collection de documents* 110.)

1167. France. Ministère de l'instruction publique et des beaux arts. Catalogue des thèses et écrits académiques. Par.1885– . Suppls.no.1170.

1167.1. Hammer,Christian. Katalog öfver disputationes(22,342),programmata (1,353) . . . etc. Stockh.,Wilhelmson,1895.

[1168. Haykin,David J. Index to "Festschriften,"anniversary publications,etc. In preparation.]

1169. Index generalis. Par.1920– .

1169.1. Jackson,Clarence Martin. Research in progress at the University of Minnesota 1924–25. Minneapolis,1926(Minn.Univ.*Research pubs. Bibl.ser.*3).

1169.2. Jahresverzeichnis der an den deutschen Universitäten erschienenen Schriften. Ber.1887– . Pub.of Preuss.Staatsbibliothek.

1169.3. Jahresverzeichnis der schweizerischen Hochschulschriften. Basel, 1898– (= *Catalogue des écrits académiques suisses.*)

1169.4. Johns Hopkins university. Library. List of dissertations . . . for the degree of doctor of philosophy,[etc.] Balt.1926.

1170. Lasteyrie du Saillant,Robert Charles,comte de. Bibliographie générale des travaux historiques et archéologiques publiés par les sociétés savantes de la France. Par.,Impr.nat.,1888–1918.6v.

1171. Maire,Albert. Répertoire alphabétique des thèses de doctorat ès lettres des universités françaises,1810–1900. Par.,Picard,1903.

1172. ——. Catalogue des thèses de sciences soutenues en France de 1810 à 1890. Par.,Welter,1892.

1173. Minerva,Jahrbuch der gelehrten Welt. Strassb.[etc.]1891– .

1173.01. Minerva-Zeitschrift. Ber.1925– . Suppl.to *Minerva.*

1173.1. Monatsverzeichnis der an den deutschen Universitäten und Technischen Hochschulen erschienenen Schriften. Lpz.[1922]– . (Suppl.of *Literarisches Centralblatt.*) Ed.by Preuss.Staatsbibliothek.

1173.2. Müller,Johannes. Die wissenschaftliche Vereine und Gesellschaften Deutschlands. Ber.,Behrend,1883–1917.2v.

1174. Paris. Bibliothèque nationale. Département des imprimés. Catalogue des dissertations et écrits académiques provenant des échanges. Par. 1884– .

1174.1. Schonack,Wilhelm Franz Robert. Ein Jahrhundert Berliner philologischer Dissertationen(1810–1910). Wolfenbüttel,Zwissler,1914.

1175. U.S.Library of Congress. List of American doctoral dissertations. Wash. 1913– .

1175.1. Wijndelts,J.W. Catalogus van academische proefschriften. Groningen, Evers,1901–03.2v.

1176. Yearbook of the scientific and learned societies of Great Britain and Ireland. Lond.1884– .

1176.1. Yearbook of the universities of the Empire. Lond.[1914]– . Includes list of theses,1927– .

CHAPTER X

NATIONAL BIBLIOGRAPHIES

Cf. also History & biography (*chap.* 4), *Literature* (*chap.* 5), *Government, periodical, and society publications* (*chap.* 9), *Bibliographies of bibliographies* (*chap.* 11 *C*), *Bibliographical journals* (*chap.* 11 *D*), *Early printed books* (*chap.* 13), *Book-trade* (*chap.* 14 *E*); *also nos.* 4, 14, 1425 (*esp. Pollard*), 1453.

A. BIBLIOGRAPHIES (INTERNATIONAL) OF NATIONAL BIBLIOGRAPHIES

1177. New York state library school,Albany. Selected national bibliographies. Alb.1915.3d ed. (Its *Bull.*38.)

1178. Peddie,Robert Alexander. National bibliographies. Lond.,Grafton,1912. New ed.in *Lib.world* 24(1921–22)– .

B. UNITED STATES

1179. Allibone,Samuel Austin. Critical dictionary of English literature and British and American authors. Phila.,Lippincott,1900.3v.& Suppl.by J.F.Kirk, 2v. Also earlier issues.

1180. American catalogue. N.Y.,Pub.weekly,1881–1911.9v. Suppl.by *Annual American catalogue*,1887–1911.

1181. American collector. Metuchen,N.J.,1925– .

[1182. American council of learned societies. Dictionary of American national biography. N.Y.,Scribner,in preparation. General ed.,Allen Johnson.]

1183. American library association. A.L.A.catalogue. Chic.1926. Ed.by I. M.Cooper.

1184. ——. Reading with a purpose. Chic.1925– .

1184.1. American yearbook. N.Y.1910– .

1184.2. Appleton's cyclopædia of American biography,ed.by J.G.Wilson and J.Fiske. N.Y.1888–1900.7v.

1185. Booklist; a guide to the best new books. Bost.[etc.]1905– . Pub.of A.L.A.

1186. Booklist books. Chic.,A.L.A.,1921– .

1187. Brown university. John Carter Brown library. Bibliotheca americana; catalogue. Providence,1919–22.2v.

1188. Clements,William Lawrence. The William L. Clements library of Americana at the University of Michigan. Ann Arbor,The University,1923.

1189. Cumulative book index. Minneapolis[etc.]1898– .

1190. De Ricci,Seymour. Book collector's guide; a practical handbook of British and American bibliography. Phil.,Rosenbach,1921.

1191. Evans,Charles. American bibliography. Chic.,Priv.print,1903– .

1191.1. Foley,Patrick Kelvin. American authors 1795–1895 . . . first and notable editions. Bost.,For subscribers,1897.Rev.ed. Suppl.,by D.Coney,in preparation.

1192. Ford,Paul Leicester. Check list of bibliographies . . . of American books and subjects. Brooklyn,1889.

1193. Growoll,Adolf. Book-trade bibliography in the U.S.in the XIXth century. N.Y.,Dibdin club,1898.

1194. Hopkins,Frederick M. American first editions; forty years of book collecting history. (In *Pub.weekly*(1924)p.1625–30.)

1195. Kelly,James. American catalogue of books . . . 1861–1871. N.Y.,Wiley, 1866–71.2v.

1195.1. National cyclopedia of American biography. N.Y.,White,1892–1921. 17v.

[1196. Paris. Bibliothèque nationale. Département des imprimés. Catalogue de l'histoire de l'Amérique. Par.1903–11.5v. By G.A.Barringer.]

1197. Publishers' trade list annual. N.Y.1873– .

1198. Publishers' weekly. N.Y.1872– . Preceded by *Trade circular and publishers' bulletin*(1861–71); *American literary gazette*(1855–72); & *Norton's literary advertiser*(1851–55). Quarterly index.

1199. Richardson,Ernest Cushing. American books and libraries from the standpoint of cooperation. (In League of nations. Comm.on intellectual cooperation. *Bull.of the Internat.union information off.*v.2,no.4–5,p.238–62.)

1200. Roorbach,Orville Augustus. Bibliotheca Americana[1820–61]. N.Y. 1852–61.4v.

1201. Sabin,Joseph. Dictionary of books relating to America. N.Y.,Sabin, 1868– .

1202. Société des américanistes. Journal. Par.1895– .

1202.1. Standard catalog series. N.Y.,Wilson,1916– . Suppl.by *Standard catalog bimonthly.*

1203. Trübner,Nikolaus,firm. Trübner's American and oriental literary record. Lond.1865–91.

1204. ——. Trübner's bibliographical guide to American literature. Lond.1859.

1205. U.S.Copyright office. Catalogue of copyright entries. Wash.1891– .

1206. United States catalog. N.Y.1900.2d ed.,1906; 3d ed.,1912; 4th ed.in prep. Suppls.1918,1921,etc.,& annually(= Annual *Cumulative book index*).

1206.1. Waldman,Milton. Americana. N.Y.,Holt,1925.

1207. Who's who in America. Chic.c1899– .

1208. Wilson,H.W.,firm. Quarter century of cumulative bibliography. N.Y. 1923.

C. CANADA

1209. Burpee,Lawrence Johnstone. Bibliography in Canada. (In *Public libraries* 12(1907)p.901–05.)

1210. ——. Canadian bibliography for the year 1901. (In Royal soc.of Can. *Trans.*2d ser.(1902–03)v.8 sec.2.)
1211. Canada. Archives. Catalogue of pamphlets,journals and reports. Ottawa, Taché,1916.2d ed.,by N.Fee.
1212. Canada. Parliament. Library. Catalogue. Toronto,Lovell,1857–58.2v.
[1213. ——. Report of the joint librarians. 1871–1900. (In *Sessional papers.*)]
[1214. Canada Patent office. Record. Ottawa,1888– .]
1215. Canadian annual review of public affairs. Toronto[1903]– .
1216. Canadian bookman. St.Anne de Bellevue [etc.1919]– .
1217. Canadian catalogue of books published in Canada,books about Canada. Toronto,1923– . By Toronto public library.
1218. Dionne,Narcisse Eutrope. Inventaire chronologique des livres . . . en langue française. Québec,1905–09.4v. Suppl.1912. (Also in Royal soc.of Canada. *Proc.& trans.*2d ser.v.10–12,14; 3d ser.v.5.)
1219. Gagnon,Philéas. Essai de bibliographie canadienne. Québec,L'Auteur, 1895–1913.2v. Index to follow.
1220. Geddes,James,jr. Bibliographical outline of French-Canadian literature. (In Bibl.soc.of Amer.*Papers* 8(1914)p.7–42.)
1221. Haight,Willet Ricketson. Canadian catalogue of books,1896. Suppl., *Annual Canadian catalogue*,1897–98.
1222. Moir,Elizabeth. List of books on Canadian bibliography in the reference department of the Toronto Public Library. (In *Lib.world* 13(1910–11)p.111–13.)
1223. Morgan,Henry James. Bibliotheca Canadensis. Ottawa,Desbarats,1867.
1224. ——. Canadian men and women of the time. Toronto,Briggs,1912.
1225. Toronto. Public library. Books and pamphlets published in Canada,up to[1837]. Toronto,1916. By F.Staton.
1226. Wallace,William Stewart. Dictionary of Canadian biography. Toronto, Macmillan,1926.
1227. Who's Who in Canada,including the British possessions in the Western hemisphere. Toronto,International press,1922.16th ed.

D. GREAT BRITAIN

*Cf. also nos.*1424–25.

1229. Boase,Frederick. Modern English biography . . . of persons who died since 1850. Truro,Netherton,1892–1921.6v.
1230. Bookseller[etc.] Lond.1858– . Title varies.
1231. Dictionary of national biography; ed.by L.Stephen and S.Lee. Lond. [etc.]1885.63v.& *Index & epitome.* Also suppls.including deceased up to 1921.
1231.1. Edinburgh bibliographical society. Publications. Edin.1891– .
1232. English catalogue of books. Lond.1864– . Also annual issue,1834– .
1233. Growoll,Adolf. Three centuries of English booktrade bibliography. N.Y., Dibdin club,1903.
1234. Henry E. Huntington library and art gallery,San Marino,Cal. Check-list. N.Y.1919. Suppl.,1920. Cat.of English books to 1640.
1235. London. Stationers' company. Transcript of the registers . . . 1554–1640. Lond.,Priv.print,1875–94.5v. Ed.by E.Arber. Continued for 1640–1708 by G.E.B.Eyre & H.R.Plomer. Lond.1913–14.3v. (Pub.for Roxburghe club.)
1236. London catalogue of books. Lond.1773–1855. Various eds.& titles.
1237. Lowndes,William Thomas. Bibliographer's manual of English literature. Lond.,Bohn,1864.6v. Also other eds.
1237.1. National book council. Bibliographies. Lond.1925– .
1237.2. New York. Public library. List of works relating to Scotland. (In its *Bull.*18(1914)*passim.* Also reprinted.) By G.F.Black.
1239. Publishers' circular. Lond.1837– .

1240. Reference catalogue of current literature. Lond.1874– .
1240.1. Sawyer,Charles,& Darton,Frederick Joseph Harvey. English books 1475–1900; a signpost for collectors. Westminster,1927.2v.
1241. Term catalogues,1668–1709 A.D.; with a number for Easter term,1711. Lond.,Priv.print,1903–06.3v. Ed.by E.Arber.
1242. Watt,Robert. Bibliotheca britannica. Edin.,Constable,1824.4v.
1243. Whitaker's cumulative book list. Lond.1924– .
1244. Who was who . . . those who died . . . 1897–1916. Lond.,Black,1920.
1245. Who's who. Lond.1849– . Annual.
1246. Who's who in literature. Liverpool[etc.]1924– . Continues bibl.section of *Literary year book.*

E. FRANCE

1246.1. Annuaire international . . . de culture française. Par.1921– .
1247. Bibliographie de la France. Par.1811– . Continues *Journ.typogr.et bibl.*
1248. Bibliographie française. Par.,Le Soudier,1900.10v.2d ed. Collection of pubs.' catalogues. 2d ser.1908–11,2v.,Dictionary cat.for 1900–09. Suppl.[1255].
1249. British museum. Dept.of printed books. Short-title catalogue of books printed in France and of French books printed in other countries from 1470 to 1600. Lond.1924. By H.Thomas & others.
1250. Carteret,Léopold. Trésor du bibliophile . . . 1801–1875. Par.1924– .
1251. Catalogue général de la librairie française. Par.,Lorenz[etc.]1867– . Continues Quérard[1257].
1252. Catalogue mensuel de la librairie française. Par.1876– .
1253. Delalain,Paul. Ancêtres de la *Bibliographie de la France.* (In *Bibl.*de la France,1911,"Chronique," p.223–29.)
1254. Fédern,Robert. Répertoire bibliographique de la littérature française. Lpz.,Volckmar,1913.
1254.2. Livres du mois. Par.1920– .
1254.3. Lonchamp,Frédéric Charles. Manuel du bibliophile français. Lausanne,1924– .
1255. Mémorial de la librairie française. Par.,LeSoudier,1896– . Cf.no.1248.
1256. Paris. Université. Bibliothèque. Catalogue de la Réserve XVIe siècle (1501–1540). Par.,Champion,1910. Suppl.,1923. Repr.from *Rev.des bibliothèques* 19–20 & 27–28(1909–10,1917–18). By C.Beaulieux.
1257. Quérard,Joseph Marie. France littéraire . . . pendant les XVIIIe et XIXe siècles. Par.,Didot,1827–64.12v.& sequel,*Littérature française contemporaine,XIX siècle.* Par.,Daguin,1842–57.6v.
1257.1. Qui êtes vous? Par.[1908]– .
1258. Vicaire,Georges. Manuel de l'amateur de livres du 19e.siècle. Par.,Rouquette,1894–1920.8v.

F. GERMANY

Cf. also no. 690.

1259. Allgemeine deutsche biographie. Lpz.,Duncker,1875–1910.56v. Ed.by K.Bayer. Akad.der Wiss.Hist.Comm. Suppl.by *Biographisches Jahrbuch und deutscher Nekrolog.*(Ber.1897–1915)& *Deutsches biogr.Jahrb.*,1925– .
1261. Börsenblatt für den deutschen Buchhandel. Lpz.1834– .
1262. Brieger,Lothar. Ein Jahrhundert deutscher Erstausgaben[1750–1880]. Stutt.,Hoffmann,1925.
1263. Das deutsche Buch. Lpz.1921– .
1264. Deutscher Literaturkatalog. [Lpz.1904]– .
1265. Deutsches Bücherverzeichnis des Jahres 1911– . Lpz.1915– .
1266. Georg Karl & Ost,Leopold. Schlagwortkatalog. Hannover,1889–1913.7v.
1267. German books . . . 1914–1925,exhibited at New York by the "Börsenverein der deutschen Buchhändler." Lpz.1925. Includes introd.articles on Ger-

man scientific work,German publishing centres(by F.Schulze),& "The bright and beautiful book" (by H.G.Scheffauer).
1269. Halbjahrs-Verzeichnis der im deutschen Buchhandel erschienenen Bücher,Zeitschriften,Landkarten. Lpz.,Hinrichs[etc.]1798– . Title varies.
1270. Heinsius,Wilhelm,& others. Allgemeines Bücher-Lexikon. Lpz.1812–94. 19v.
1271. Hinrichs Katalog . . . 1851–1912. Lpz.1857–1913.13v. Title varies.
1272. Jahresberichte des Literarischen Zentralblattes. Lpz.1925– .
1273. Kayser,Christian Gottlob. Vollständiges Bücher-Lexicon. Lpz.1834–1910.36v.& indexes. Covers 1750–1910.
1274. Kleine Literaturführer. Lpz.,Koehler,1921– . Partial contents:—1. Bartels,A. Die besten deutschen Romane.—3. Ulrich,H. Die besten deutschen Geschichtswerke.—4. Raabe,B. Von der Antike.—5. Westphal,M. Die besten deutschen Memoiren.—6. Timmling,W. Kunstgeschichte.
1275. Kürschners deutscher Gelehrten-Kalender. Ber.1925– . Annual.
1276. Kürschners deutscher Literatur-Kalender. Bremen,1879– . Annual.
1277. Loewe,Victor. Kritische Bücherkunde der deutschen Bildung. Weimar, Duncker,1912–13.2v.
1278. Minde-Pouet,Georg. Die bibliographischen Unternehmungen der Deutschen Bücherei. (In *Z.B.*39(1922)p.271–84.)
1278.1. Russell,Adolph. Buch- und Kunst-Katalog. Gesammt-Verlags-Katalog des deutschen Buchhandels. Münster,Russell,1881–94.17v.
1279. Thelert,Gustav. Supplement zu Heinsius,Hinrichs und Kaysers. Bücherlexikon. Grossenhaim,Baumert,1893.
1280. Wer ist's. Lpz.1905– .
1281. Wissenschaftliche Forschungsberichte[1914–19]hrsg.von K. Hönn. Gotha,Perthes,1919– .
1282. Wöchentliches Verzeichnis der erschienenen und der vorbereiteten Neuigkeiten. Lpz.1842– .

G. ITALY

1283. Bibliografia italiana . . . compilata sui documenti pubblicati dal Ministero dell' istruzione pubblica. Fir.1868–1904.
1284. Catalogo dei cataloghi del libro italiano. Bologna[1922]– .
1285. Florence. Biblioteca nazionale centrale. Bollettino delle pubblicazioni italiane ricevute per diritto di stampa. Fir.1886– .
1286. Fondazione Leonardo per la cultura italiana,Rome. Guide bibliografiche. Roma,1914– . Cf.esp.nos.11–12. Fumagalli,G. *Bibliografia*,1923.
1287. Giornale della libreria. Mil.[1888]– .
1288. Haym,Nicola Francesco. Biblioteca italiana; o sia Notizia de' libri rari nella lingua italiana. Mil.,Silvestri,1803.4v.Rev.ed.
[1289. Manzoni,Romeo. Esuli italiani nella Svizzera. Mil.,Caddeo,1921.]
1290. Pagliaini,Attilio. Catalogo generale della libreria italiana 1846–99. Mil.1901–22.3v.& index. Suppls.,1912– .
1291. Rovito,Teodoro. Letterati e giornalisti italiani contemporanei. Nap. 1922.2d ed.
1292. Sellers,Harry. Italian books printed in England before 1640. (In *Library* 4th ser.v.4(1924)p.105–28.)

H. BELGIUM AND HOLLAND

1293. Aa,Abraham Jacob van der,& others. Biographisch woordenboek der Nederlanden. Haarlem,Brederode,1867–78.21v.
1294. Abkoude,Johannes van. Naamregister van de bekendste . . . Nederduitsche boeken[1600–1761]. Rotterdam,Arrenberg,1788.2v.& suppls.,*Alphabetische naamlijst,* etc.,to 1839.

1295. ACADÉMIE ROYALE DES SCIENCES,DES LETTRES ET DES BEAUX-ARTS DE BELGIQUE. Biographie nationale. Brux.,Bruylant-Christophe,1866– .

1296. BIBLIOGRAPHIE DE BELGIQUE. Brux.1876– . Continues *Bibl.de la Belgique.*

1297. BIBLIOGRAPHIE NATIONALE; dictionnaire des écrivains belges et catalogue de leurs publications,1830–80. Brux.,Weissenbruch,1886–1910.4v.

1298. BIBLIOTHECA BELGICA; bibliographie générale des Pays-Bas. Gand[etc.] 1880– . By F.van der Haeghen & others.

1299. BRINKMAN'S CATALOGUS der boeken,plaat- en kaartwerken. Amst.[etc.] 1858– . Covers 1833– . Earlier title *Alphabetische naamlijst,* etc. Also an annual *Brinkman's alphabetische lijst,*1846– .

1300. CAMPBELL,MARINUS FREDERIK ANDRIES GERARDUS. Annales de la typographie néerlandaise au XVe siècle. La Haye, Nijhoff,1874–90.5v.& suppl. by R.G.C.Proctor,Lond.1897; & by W.Nijhoff & M.E.Kronenberg,*Nederlandsche bibliographie* 1500–40,1923 & in *Het Boek* 1925– .

1301. MOLHUYSEN,PHILIP CHRISTIAAN,& BLOK,PETRUS JOHANNES. Nieuw Nederlandsch biographisch woordenboek. Leid.,Sijthoff,1911– .

1302. NEDERLANDSCHE BIBLIOGRAPHIE; lijst van nieuw verschenen boeken. Leid., 1856– .

1302.1. NIJHOFF'S CATALOGUS van de belangrijkste oorspronkelijke Nederlandsche werken. 's Gravenhage, 1925.

1302.2. PAGINAE BIBLIOGRAPHICAE. Brux.1926– . Notices of books and articles.

I. SCANDINAVIAN COUNTRIES

1303. AARSKATALOG OVER NORSK LITTERATUR. Kristiania, 1903– .

1304. ÅRSKATALOG FÖR SVENSKA BOKHANDELN. Stockh.1856– .

1305. ALMINDELIGT DANSK-NORSK FORLAGSCATALOG. Hauniae,1841. Suppls.to 1849. By F.Fabricius.

1306. AMERICAN-SCANDINAVIAN FOUNDATION,NEW YORK. List of five hundred books by Scandinavians and about Scandinavia.[N.Y.]1921.

1307. BRUUN,CHRISTIAN WALTHER. Bibliotheca Danica . . . 1482 til 1830. Kjøb., Gyldendal,1877–1902.4v. Suppl.by L.Nielsen,1914.

1308. CORNELL UNIVERSITY. LIBRARY. Catalogue of the Icelandic collection bequeathed by Willard Fiske. Ithaca,1914. Suppl.1927. By H.Hermannsson.

1309. DANSK BOGFORTEGNELSE. Kjøb.,1851– . Various issues,covering periods of weeks,months,& years.

1310. EHRENCRON-MÜLLER,HOLGER. Forfatterlexikon omfattende Danmark, Norge og Island indtil 1814. Køb.,Aschehoug,1924– .

1311. ERSLEW,THOMAS HANSEN. Almindeligt Forfatter-Lexicon for Danmark fra 1814 til 1840. Kjøb.,Forlagsforeningen,1843–53.3v. Suppl.to 1853. 1858–68.3v.

1311.01. FJELD,KOLBJÖRN. Essai sur la bibliographie scandinave. (In *Rev.des bibliothèques* 37(1927)p.392–402.)

1311.1. FLOM,GEORGE T. History of Scandinavian studies in American universities . . . with a bibliography. Iowa City,1907(*Iowa stud.in lang.& lit.*2).

1312. HALVORSEN,JENS BRAAGE. Norsk forfatter-lexikon,1814–1880. Kristiania, Norske forlagsforening,1885–1908.6v.

1313. ISLANDICA; an annual relating to Iceland and the Fiske Icelandic collection. Ithaca,Cornell univ.library,1908– .

1314. JOSEPHSON,AKSEL GUSTAV SALOMON. List of Swedish books 1875–1925. Chic.,A.L.A.,1927.

1314.1. KLEMMING,GUSTAV EDVARD. Sveriges bibliografi 1481–1600. Upsala,Akad. boktryckeriet,1889–92.4pt. Ed.by A.Anderson.

1315. LINNSTRÖM,HJALMAR. Svenskt boklexikon,åren 1830–1865. Stockh.[1867]–84.2v.

1316. NIELSEN,LAURITZ. Dansk Bibliografi 1482–1550. Køb.,Gyldendal,1919.

1317. Nordisk litteraturfortegnelse . . . til studiet af danske,norske og svenske forhold. [Kristiania,Raadhustrykkeriet]1921. By T.Døssing & others.

1318. Norsk bogfortegnelse. Kristiania,1848– . Also annual issue for 1883– .

1319. Nyerup,Rasmus,& Kraft,Jens Edvard. Almindeligt Litteraturlexicon for Danmark,Norge,og Island. Kjøb.,Gyldendal,1820.

1320. Pettersen,Hjalmar. Bibliotheca norvegica. Christiania,Cammeyer,1899–1924.4v.

1321. Svensk bok-katalog for åren 1866– . Stockh.1878– . Suppl.by no.1304.

1321.1. Svenskt biografiskt lexikon. Stockh.,Bonnier,1917– . Ed.by B. Boëthius.

J. SPAIN AND PORTUGAL

1322. Antonio,Nicolás. Bibliotheca hispana vetus. Madr.,DeIbarra,1788.2v. Also *Bibliotheca hispana nova* . . . 1500–1684. 1783–88.2v.

1323. Bibliografía. Barcelona,1919– .

1324. Bibliografía general española e hispano-americana. Madr.1901– . Earlier title: *Bibl.española.*

1325. Bibliographie hispanique,1905–17. N.Y.,Hisp.soc.of Amer.[1909]–17.13v.

1326. Boletín de la librería española. Madr.,Murillo,1874–1909.

1327. Boston. Public library. Ticknor collection. Catalogue. Bost.1879.

1328. British Museum. Dept.of Printed Books. Short-title catalogue of books printed in Spain and of Spanish books printed elsewhere in Europe before 1601. [Lond.]1921. By H.Thomas.

1328.1. ——. Short-title catalogue of Portuguese and of Spanish-American books printed before 1601. Lond.,Quaritch,1926. By H.Thomas.

[1329. Catalogo de Catalogos. Barcelona,1925– .]

1330. Foulché-Delbosc,Raymond. Manuel de l'hispanisant. N.Y.,Putnam, 1920– .

1331. Gallardo,Bartolomé José. Ensayo de una biblioteca española de libros raros y curiosos. Madr.,Rivadeneyra,1863–89.4v.

1331.1. Haebler,Konrad. Bibliografía ibérica del siglo XV. La Haya,Nijhoff, 1903–17.2v.

1332. Heredia y Livermore,Ricardo. Catalogue de la bibliothèque. Par.,Paul, 1891–94.4v. Index[1334].

1333. Hidalgo,Dionisio. Diccionario general de bibliografía española. Madr., Escuelas pias,1862–81.7v.

1333.1. Iberica. Hamb.1924– . Pub.of Ibero-amerikanisches Institut.

1334. Molina Navarro,Gabriel. Indice . . . de los catálogos de Salvá y Heredia. Madr.,Molina,1913.

1335. Palau y Dulcet,Antonio. Manual del librero hispano-americano. Barcelona,1923–27.7v. v.2p.140–88,*Bibl.de Cervantes*,also reprinted.

1335.1. Pinto de Mattos, Ricardo. Manual bibliographico portuguez de livros raros, classicos[etc.]. Porto,Livraria portuense,1878.

1336. Revista de bibliografia catalana. Barcelona[1901]– .

1337. Revue hispanique. Par.1894– .

1338. Salvá y Pérez,Vicente. Catálogo de la biblioteca de Salvá. Valencia, Ferrer de Orga,1872.2v. Index[1334].

1338.1. Silva,Innocencio Francisco da. Diccionario bibliographico . . . applicaveis a Portugal e ao Brasil. Lisboa,Impr.nac.,1858–1914.21v.(incl.suppls.).

K. LATIN AMERICA

1339. Hispanic American historical review. Balt.[1918]– .

1340. Jones,Cecil Knight. Hispanic American bibliographies. (In *Hispanic Amer.hist.rev.*3–4(1920–21). Also reprinted.) Suppl.,*ibid.*6(1926)p.100–42.

1341. Libro y el pueblo. Mexico,Dep.de bibliotecas,1922– .

1342. Medina,José Toribio. Biblioteca hispano-americana(1493–1810). Santiago de Chile,Autor,1898–1907.7v.illus.

1343. Mexico. Ministerio de relaciones exteriores. Monografias bibliograficas mexicanas. Mexico,1925– . Partial contents:—2. Sala,R. Marcas de fuego de las antiquas bibliotecas mex.—3. Iguíniz,J.B. Bibl.de novelistas mex.—4. Romero de Torreros,M. Bibl.de cronistas de la ciudad de Mex.—5. Mena, R. Filigranas . . . del siglo XVI.—8. Mex.Dep.de petróleo. Bibl.del petróleo en Mex.—9. García Icazbalceta,J. Catálogo de la coleccion de manuscritos relativos a la historia de America.—10. Alessio Robles,V. Bibl.de Coahuila.

1344. Revista de bibliografía chilena y extranjera. Santiago de Chile, 1913– . Includes Vaisse,E. *Bibl.gen.de Chile*(also reprinted,1915–).

1345. Rio de Janeiro. Bibliotheca Nacional. Boletim bibliographico. Rio de Janeiro,1918– .

1346. Trelles y Govin,Carlos Manuel. Biblioteca histórica cubana. Matanzas,Oliver,1922–26.3v.

L. SWITZERLAND

1347. Bern.Schweizerische Landesbibliothek. Catalogue. Berne,1910– . Suppl.by its *Bull.bibl.*1901– .

1348. Bibliographie nationale Suisse. Berne,Wyss,1892– .

[1348.1. Dictionnaire historique et biographique de la Suisse. Neuchâtel [1920]– .]

1349. Lonchamp,Frédéric Charles. Manuel du bibliophile suisse. Par.,Libr. des bibliophiles,1922. Includes "Bibl.gén.," also pub.separately.

M. AUSTRIA AND EASTERN EUROPE

[1350. Bibliografický katalog. Praze,1923– .]

1351. Bibliographia Hungariae. Ber.[etc.]1923– . Pub.of Ber.Univ.,Ungarisches Inst.

1352. Čapek,Thomas. Bohemian(Čech)bibliography; a finding list of writings in English. N.Y.,Revell,c1918.

1353. Estreicher,Karol Jósef Teofil. Bibliografia polska. Kraków,1870– .

1353.1. Georgesco-Tistu,N. Bibliothèques et la bibliographie roumaine. (In *Rev.des bibl.*37(1927)p.36–43.)

[1354. Hahn,Wiktor. Bibliografja bibliografji polskiej. Lwow,Altenberg,1921.]

1355. Kerner,Robert Joseph. Foundations of Slavic bibliography. (In Bibl. soc.of Amer.*Papers* 10(1916)p.3–39. Also reprinted.)

1356. ——. Slavic Europe; a selected bibliography in the western European languages. Camb.,Harvard univ.press,1918.

[1357. Ksiazka; miesiecznik poswiecony krytyce i bibljografji. Warsaw,1901– .]

1358. Lantos,firm,Budapest. List of all Hungarian books in trade. Budapest, 1925. By B.Pikler & R.Braun.

1358.1. Legrand,Émile Louis Jean. Bibliographie albanaise . . . ouvrages pub. en albanais ou relatifs à l'Albanie. Par.,Welter,1912.

1359. ——. Bibliographie hellénique . . . XVe et XVIe siècles. Par.,Leroux,1885–1906.4v. Continued,for 18th century,Par.,Garnier,1918– .

1360. Librarian guide; general catalogue of Polish books. Warsaw,1925. Suppls. announced. Polish title:*Przewodnik księgarski*,etc.

[1361. Magyar könyvszemle. Budapest,Magyar tudományos akad.,1876– .]

1361.1. Neue österreichische Biographie. Wien,Amalthea Verlag,1923. Ed.by A. Bettelheim & others.

1361.2. New York. Public library. List of works . . . relating to the Near Eastern question and the Balkan states,including Turkey and Modern Greece. (In its *Bull.*14(1910)*passim.*)

1362. Osteuropa Institut,Breslau. Osteuropäische Bibliographie. Lpz.[etc.]

1921– . Cf.also its *Jahrbücher für Kultur und Geschichte der Slaven.*Bresl.,1924– .

1363. REVUE DES ÉTUDES SLAVES. Par.1921– .

1363.1. REVUE HISTORIQUE DU SUD-EST EUROPÉEN. Bucarest,1924– . Continues *Bull.de l'Inst.pour l'étude de l'Europe sud orientale.*

1363.2. SLAVONIC REVIEW.[Lond.]1922– . Pub.by Univ.of Lond.School of Slavonic studies.

1364. SZINNYEI,JÓZSEF. Magyar írók. Budapest,Hornyánszky,1891–1914. 14v. Suppl.by P.Gulyás,1925.

1365. UNGARISCHE JAHRBÜCHER. Ber.1921– .

1365.1. U.S.LIBRARY OF CONGRESS. List of bibliographies relating to Bulgaria. Wash.1923.

N. LOCAL

[1366. ASSOCIATION DES ARCHIVISTES-PALÉOGRAPHES DU DAUPHINÉ. Annuaire bibliographique du Dauphiné. Grenoble,1921– .]

1366.1. BAUDRIER,HENRI LOUIS & JEAN. Bibliographie lyonnaise . . . XVIe siècle. Lyon,Brun,1895–1921.12v.

1367. BIBLIOGRAPHIE ALSACIENNE. Strasb.1922– . Pub.of Strassb.univ. Faculty of letters.

1368 BRITO ARANHA,PEDRO WENCESLAU DE. Bibliographie des ouvrages portugais,pour servir à l'étude des villes . . . etc.,du Portugal,Açores,Madère[etc.]. Lisb.,Impr.nat.,1900.

1369. HUMPHREYS,ARTHUR LEE. Handbook to county bibliography . . . of Great Britain and Ireland. Lond.,[Strangeways]1917.

1369.1. MICHIGAN. HISTORICAL COMMISSION. Michigan bibliography. Lansing, 1921.2v.

1369.2. RUSK,RALPH LESLIE. Literature of the middle western frontier,1700–1840. N.Y.,Columbia univ.press,1925.2v.

1369.3. UCCELLI,RAFFAELO. Contributo alla bibliografia della Toscana. Fir.,Seeber,1922.

1369.4. SERRANO Y MORALES,JOSÉ ENRIQUE. Reseña histórica . . . de las imprentas . . . en Valencia. Valencia,Domenech,1898–99.

1369.5. VANDERHAEGHEN,FERDINAND. Bibliographie gantoise. Gand,1858–69.7v.

1369.6. WHO'S WHO IN THE NATION'S CAPITAL. Wash.c1921– .

CHAPTER XI

UNIVERSAL BIBLIOGRAPHIES (INCLUDING BIOBIBLIOGRAPHIES AND ENCYCLOPÆDIC WORKS). BIBLIOGRAPHIES OF BIBLIOGRAPHIES. BIBLIOGRAPHICAL JOURNALS AND SERIES

A. UNIVERSAL BIBLIOGRAPHIES

Cf. also biobibliographies and library and union catalogues under special subjects (*chaps.* 4–6), *comprehensive select lists and priced lists* (*chap.* 9 *A*)*; general lists of incunabula* (*chap.* 13)*; also nos.* 14, 20, 22, 1435 (9. *Biagi*), 1451 (*Dziatzko*).

1370. ALLGEMEINE ENCYCLOPÄDIE DER WISSENSCHAFTEN UND KÜNSTE. Lpz., Brockhaus,1818–50.167v. Ed.by J.S.Ersch,J.G.Gruber,& others.

1371. BAY,JENS CHRISTIAN. Conrad Gesner,the father of bibliography. (In Bibl. soc.of Amer.*Papers* 10(1916)p.53–88.)

1372. BERGHÖFFER,CHRISTIAN WILHELM. Der Frankfurter Sammelkatalog. (In *Z.B.*42(1925)p.442–55.)

1373. BERLIN. STAATSBIBLIOTHEK. Berliner Titeldrucke. Ber.1892– .

1374. BIOGRAPHIE UNIVERSELLE. Par.,Desplaces,1843–65. 45v. Ed.by M.Michaud.

1375. British museum. Dept.of printed books. Catalogue. Lond.1881–1900. 95v.& suppls.1900–05.13v. Also current suppls.for clipping & filing. Also *Subject index of modern works added* 1881–1900. 3v.& quinquennial suppls.

1376. Cutter,Charles Ammi. Wonders of bibliography. (In *L.J.*7(1882)p.87.)

1377. Draud,Georg. Bibliotheca classica. Francof.,Hoffmann,1611.

1378. Frels,Wilhelm. Einheits- und Zentralkatalogisierung. (In *Z.B.*38(1921) p.169–77.)

1379. Georgi,Gottlieb. Allgemeines europäisches Bücher-Lexicon,von dem Anfange des xvi.Seculi bis 1739. Lpz.1742–53. 5 pt. Suppls.,1750–58.3v.

1380. Gesner,Konrad. Bibliotheca universalis. Tiguri,Froschauer,1545.

1380.1. Institut international de bibliographie,Brussels. Union internationale pour la bibliographie et la documentation; memorandum. Brux.1919. (Its *Pub.*127.) Cf.its *Bull.*(1896)p.15–44.

1381. Joecher,Christian Gottlieb. Allgemeines Gelehrten-Lexicon. Lpz.,Gleditsch,1750–51.4v.& various suppls.,1784–1897.7v.

1382. London library. Catalogue. Lond.1913–14.2v.& suppl.1920. Also *Subject-index.*1909 & suppl.1923. By C.T.H.Wright & C.J.Purnell.

1383. Milkau,Fritz. Centralkataloge und Titeldrucke. Lpz.1898. (*Z.B.Beiheft* 20.)

1384. Nicéron,Jean Pierre,& others. Mémoires pour servir à l'histoire des hommes illustrés. Par.,Brisson,1729–45.43v.

1385. Nouvelle biographie générale. Par.,Didot,1853–66.46v. Ed.by J.C.F. Hoefer.

1386. Paris. Bibliothèque nationale. Catalogue général des livres imprimés; Auteurs. Par.,Impr.nat.,1897– . Suppl.by its *Bull.des acquisitions franç.*(1892–), & . . . *étrangères*(1877–).

1387. Richardson,Ernest Cushing. Brussels institute again. (In *L.J.*52(1927) p.795–801.)

1388. Stein,Henri. Catalogues de ventes de livres et la bibliographie. (In *Bibl. mod.*2(1898)p.403–06.)

1389. Vapereau,Gustave. Dictionnaire universel des contemporains. Par.,Hachette,1893.6th ed.& suppl.1895.

1390. Wild,Helen,& Escher,Hermann. Ueber Gesamtkatalogisierung. Zür. 1926. (Vereinigung schweiz.Bibliothekare.*Pub.*7.)

1391. Zedler,Johann Heinrich. Grosses vollständiges Universal-Lexikon. Halle,1732–50.64v.Suppl.Lpz.,1751–54.4v.

B. GENERAL PERIODICALS INCLUDING REVIEWS

Cf. also nos. 170, 787, *etc.*

1392. Deutsche Literaturzeitung. Ber.1880– .

1393. Göttingische gelehrte Anzeigen. Gött.[etc.]1739– .

1394. Polybiblion; revue bibliographique universelle. Par.1868– .

1395. Times[London]. Literary supplement. Lond.1902– .

C. BIBLIOGRAPHIES OF BIBLIOGRAPHIES

Cf. also General works (chap. 1), *Bibliographies of reference books (chap.* 8), *Bibliographical manuals and bibliographies of bibliographies in other chapters; esp. nos.* 104, 1177, 1178, 1286, 1340, 1354, *etc.*

1396. Almquist,Johan Axel. Sveriges bibliografiska litteratur. Stockh.,Norstedt,1904–12.3v.

1397. American library association. Special indexes in American libraries. Chic.1917. Cf.current list in *Bull.of bibl.*[1482].

1398. Anselmo,Antonio Joaquim. Bibliografia das bibliografias portuguesas. Lisb.1923. (Biblioteca nac.*Biblioteca do bibliotecario* 3.) Rev.ed.

1399. Bergmans,Paul. Répertoire méthodique décennal des travaux bibliographiques parus en Belgique,1881–1890. Liège,Vaillant-Carmanne,1892.

1400. Bibliographical society,London. Library. Handlist of books in the library. (With its *Trans.*8(1907).)

[1400.1. Börsenverein der deutschen Buchhändler. Bibliothek. Katalog. Lpz.1885–1920.2v.& suppls.]

1400.2. British museum. Dept.of printed books. List of bibliographical works in the reading room. Lond.1889.2d ed. By G.K.Fortescue.

1401. Childs,James Bennett. Sixteenth century books; a bibliography of literature describing books. (In Bibl.soc.of Amer.*Papers* 17(1923)p.75–152.)

1402. Courtney,William Prideaux. Register of national bibliography. Lond., Constable,1905–12.3v.

1403. Grundtvig,Vilhelm. Bibliographie der Bibliographie—eine internationale Angelegenheit. (In *Arch.f.Bibl.*1(1926)p.188–200.)

1404. John Crerar library,Chicago. List of bibliographies of special subjects. Chic.1902.

1405. Josephson,Aksel Gustav Salomon. Bibliographies of bibliographies. Chic.1913.2d ed. (Repr.from Bibl.soc.of Amer.*Bull.*v.2–4 & *Papers* v.7.) New ed.in preparation by F.S.Hellman.

1406. Kaiser,John Boynton. Around the bibliographical corner; some projected bibliographic and reference compilations. (In *L.J.*50(1925)p.700–04.)

1407. Keogh,Andrew. Some general bibliographical works,of value to the student of English. [New Haven],Yale univ.,1901.

1408. Koczorowski,Stanislaw Piotr. Coup d'œil sur l'histoire de la bibliographie en Pologne. Par.,Champion,1925.New ed.

1408.1. Library association,London. Union class-list of the libraries of the Library and Library assistants' associations. [Lond.] 1913.

1409. Losseau,Léon. L'outillage bibliographique de la Belgique. Mons [1920]. Repr.from Soc.des bibliophiles belges. *Bull.*v.2.

1410. Merrill,William Stetson. General and national bibliographies. (In Bibl.soc.of Chic.*Yearbook* 1899–1900,p.19–25.)

1411. Mortet,Charles. Bibliographie. (In *Bibl.mod.*18(1916–17)p.273–304.)

1412. Namur,Jean Pie. Bibliographie paléographico-diplomatico-bibliologique générale. Liège,Collardin,1838.3v.

1413. Newberry library,Chicago. Book arts. Chic.1919–20.2v.Library cat.

1414. Ottino,Giuseppe,& Fumagalli,Giuseppe. Bibliotheca bibliographica italica. Roma,Pasqualucci,1889.2v. Suppls.,1896–1901.4v.

1414.1. Peddie,Robert Alexander. List of bibliographical works published since . . . 1893. (In Bibl.soc.*Trans.*10(1908)p.235–311.)

1415. Peignot,Gabriel. Répertoire bibliographique universel. Par.,Renouard, 1812.

1416. Petzholdt,Julius. Bibliotheca bibliographica. Lpz.,Engelmann,1866.

1417. Schneider,Georg. Handbuch der Bibliographie. Lpz.,Hiersemann,1923.

1418. Stein,Henri. Manuel de bibliographie générale. Par.,Picard,1897.

1418.1. U.S.Library of Congress. Publications issued. Wash.1920.Suppl.,1927.

1419. Vallée,Léon. Bibliographie des bibliographies. Par.,Terquem,1883. Suppl.,1887.

[1419.1. Vereeniging ter bevordering van de belangen des boekhandels, Amsterdam. Bibliotheek. Catalogus. Gravenhage,Nijhoff,1920– .]

D. BIBLIOGRAPHICAL PERIODICALS AND SERIES

Cf. also periodicals of national bibliography (*chap.* 10); *also nos.* 158, 351, 789 (3. *Cobb*), 798, *etc.*

1420. American library association. Bulletin. Bost.1907– . Includes annual *Papers & proceedings.* Earlier Proceedings in *L.J.*

1421. American library institute. Papers and proceedings. Chic.[etc.] 1905– .

1421.1. Anais das bibliotecas e arquivos de Portugal. Coimbra,1915– .

1422. Archiv für Bibliographie,Buch und Bibliothekswesen. Linz,1926– .

1423. Bibliographe moderne. Par.1897– .

1424. Bibliographical Society,London. Illustrated monographs. Lond.1894– . Partial contents:—1. Redgrave,G.R. Erhard Ratdolt.—4. Haebler,K. Early printers of Spain and Portugal.—7. Macfarlane,J. Antoine Vérard.—8. Proctor, R. Printing of Greek in the 15th century.—11. Steele,R. Earliest Eng.music printing.—12. Madan,F. Chart of Oxford printing.—14. Bourdillon,F.W. Early editions of the Roman de la rose.—15. De Ricci,S. Census of Caxtons.—16. McKerrow,R.B. Printers' and publishers' devices in Eng.& Scot.1485–1640.—17. Bosanquet,E.F. English printed almanacs.—18. Duff,E.G. Fifteenth century Eng.books.—19. Osler,W. Incunabula medica.—20. Thomas-Stanford,C. Early eds.of Euclid's Elements.

1425. ——. [Publications.] Lond.1897– . Partial contents:—Greg,W.W. List of Eng.plays written before 1643. 1900.—Greg,W.W. List of masks,pageants,etc. 1902.—Duff,E.G. Century of the English book trade. 1905.—Plomer,H.R., McKerrow,R.B.,& others. Dictionary of printers & booksellers . . . in Eng., Scot.,& Ireland,[1557–1725.] 1907,1910,1922.3v.—Esdaile,A.J.K. List of Eng. tales & prose romances. 1912.—Wise,T.J. Bibl.of the writings of S.T.Coleridge. 1913.—Palmer,H.R. List of Eng.eds.& translations of Greek & Lat.classics printed before 1641. 1911.—Hand-lists of books printed by London printers, 1501–66. 1913.4v.—Brown,C.F. Register of Middle English religious & didactic verse. 1916.—Pollard,A.W.,& others. Short-title catalogue of books printed in England,Scotland & Ireland,and of English books printed abroad,1475–1640. 1926.

1426. ——. Transactions. Lond.1893–1919. Continued,1920– ,in *Library*,4th ser.

1427. Bibliographical society of America. Papers. N.Y.[etc.] 1906– .

1428. Bibliothèque de bibliographies critiques. Par.[1899]– . Pub.of soc. des études hist. Partial contents:—2. Martin,G. Industrie en France avant 1789.—5. Palat,B.E. Guerre de 1870.—13. Cagnat,R. Épigraphie latine.—18. Blanchet,A. Sigillographie française.—20. Guiffrey,J.M.J. Tapisserie.

1429. Het boek. Haag,1912– . Continues *Tijdschrift voor boek en bibliotheekwezen.*

1430. Bogens Verden. Køb[1918]– .

1430.1. Boken om Bøker; aarskrift. Oslo,1926– .

1430.2. Bollettino del bibliofilo. Nap.,Lubrano [1918]– .

1431. Book review digest. N.Y.1905– . Cumulative.

1431.1. Bulletin du bibliophile et du bibliothécaire. Par.1834– .

1432. Bulletin of bibliography and Dramatic index. Bost.1897– . Also reprints as *Bull.of bibl.pamphlets.*

1433. Cannons,Harry George Turner. Bibliography of library economy . . . bibliography,etc.,1876–1920. Chic.,A.L.A.,1927.

1434. Grolier Club,New York. [Publications.] N.Y.1884– . Partial contents:—Hoe,R. Lecture on bookbinding.—DeVinne,T.L. Historic printing types.—DeVinne,T.L. Christopher Plantin.—Aungerville,R. Philobiblon,tr.by A.F.West.—Matthews,W. Modern bookbinding.—Catalogue of original and early eds.of Eng.writers from Langland to Wither [& from Wither to Prior.] 2v.—Allen,C.D. Classified list of early Amer.book-plates.—Catalogue of books . . . with arms or devices upon the bindings.—Warren,A. The Charles Whittinghams,printers.—Catalogue of an exhibition of original & early eds.of Ital. books.—Leroux deLincy,A.J.V. Researches concerning Jean Grolier.—DeVinne,T.L. Notable printers of Italy during the 15th century.—Catalogue of books in 1st eds. . . . Eng.prose fiction 1485–1870.

1434.1. Institut international de bibliographie,Brussels. Bulletin. Brux. 1895– .

1435. Italy. Ministero dell' istruzione pubblica. Indici e cataloghi. Roma, 1885– . Partial contents:—1. Elenco delle pubblicazioni periodiche.—4,etc. Florence. R. Biblioteca naz.centrale. Cataloghi dei manoscritti.—5. Mazzatinti,G. Inventario dei manoscritti ital.—6. Florence. R. Biblioteca naz.centrale. Indice dei giornali politici.—9. Biagi,G. Indice del Mare magnum.—13. Carta,F. Codici,corali e libri a stampa miniati.—16. Carli,A. Bibliografia galileiana.

1436. John Rylands Library,Manchester. Bulletin. Manchester,1903– .

1436.1. Jürgens,Adolf. Russische bibliographische Zeitschriften. (In *Z.B.*42 (1925)p.644–45.)

1437. League of nations. Committee on intellectual cooperation. Bulletin for scientific relations. Par.1926– .

1438. ——. Index bibliographicus. Gen.1925. Ed.by M.Godet.

1439. Libraries. Chic.1896– . Earlier title: *Public libraries.*

1440. Library. Lond.1889– .

1441. Library Association record. Lond.1899– .

1442. Library journal. N.Y.1877– .

1443. Library work cumulated,1905–11. Minneapolis,1912. Continued in *L.J.*

1444. New York. Public library. Bulletin. N.Y.1897– .

1445. Oxford. University. Bodleian library. Bodleian quarterly record. Ox.1917– .

1446. Oxford bibliographical society. Proceedings and papers. Ox.1923– .

1447. Répertoire des ouvrages à consulter. Brux.,van Oest,1916– . Partial contents:—Fierens,P. Peinture et les peintres. 1916.—Colin,P. Gravure et les graveurs. 1916–18.2v.—Vocht,H.A.de. Langue,la littérature et les écrivains anglais. 1917.—Afstanger,P. Langue,la littérature et les écrivains italiens. 1918.—Nelis,H.Écriture et les scribes. 1918.—Hoffmanns,J. Philosophie et les philosophes. 1920.—Collard,A. Astronomie et les astronomes. 1921.—Rousseau, F. Folklore et les folkloristes wallons. 1921.

1448. Revista de archivos,bibliotecas y museos. Madr.1871– .

1449. Revue des bibliothèques. Par.[1891]– . Also suppl.monographs,e.g.1,etc. Lepreux,G. Gallia typographica.—13. Renouard,P. Marques typographiques parisiennes des XVe et XVIe siècles.

1450. Rivista delle biblioteche e degli archivi. Fir.1888– .

1451. Sammlung bibliothekswissenschaftlicher Arbeiten,begründet von Karl Dziatzko. Ber.[etc.]1887– . Partial contents:—11. Dziatzko,K. Die modernen Bestrebungen einer Generalkatalogisierung. 1898.—19,etc. Haebler,K. Typenrepertorium der Wiegendrucke. 1905–24.5v.—35–36. Prussia. Kommission für den Gesamtkatalog der Wiegendrucke. Einblattdrucke des XV.Jahrhunderts.1914.

1452. Special libraries. Indianapolis[etc.1910]–.

1453. Useful reference series. Bost.1907– . Partial contents:—1. Cole,G.W. Bermuda,a bibliography. 1907.—4 & 13. Modern drama and opera. 1911–13. 2v.—5. Walter,F.K. Abbreviations and technical terms used in book catalogs and bibliographies. 1912.—6. Faxon,F.W. Literary annuals and gift books, American and English. 1912.—8. Green,S.S. Public library movement in the United States,1883–1893. 1913.—9. Kaiser,J.B. Law,legislative and municipal reference libraries . . . manual and bibliographical guide. 1914.—10. Moth,A. Glossary of library terms in English,Danish,Dutch,French,German,Italian, Spanish,and Swedish. 1915.—14. Moth,A. Technical terms used in bibliographies and by the book and printing trades. 1915. (Supplements no.5.)—16. Lowe,J.A. Books and libraries. 1916.—18. Grimm,M.E. Translations of foreign novels. 1917.—20. Clarke,E.E. Guide to the use of United States government publications. 1918.—23. Fay,L.E.,& Eaton,A.T. Instruction in the use of books and libraries. 2d ed. 1919.—24. Dana,J.C. Suggestions. 1921.—28, Eastman,M.H. Index to fairy tales. 2d ed. 1926.—30. Logasa,H.,and Ver Nooy, W. Index to one-act plays,1900–1924. 1924.—32. Ward,G.O. Practical use of books and libraries. 4th ed.1926.—34. Sturgis,C. Spanish world in Eng.fiction. 1927.

[1454. **Year's work in library studies** for 1927– . Announced by (British) Library assoc.]

1454.1. **Zeitschrift für Buchkunde.** Lpz.1924– . Continues in part *Zeitschrift des Deutschen Verein für Buchwesen und Schrifttum* 1918–23.6v.

1455. **Zentralblatt für Bibliothekswesen.** Lpz.1884– . Also *Beihefte* (including annual *Bibl.des Bibliotheks- und Buchwesens*,1905–).

CHAPTER XII

HISTORY OF WRITING

Cf. also General works (*chap.* 1), *bibliographies of palæography, etc.* (*chap.* 4 *E*), *catalogues of MSS. and historical works under subject bibliography* (*chaps.* 4–6); *Bibliographical journals* (*chap.* 11 *D*), *Illumination of MSS.* (*chap.* 14 *A*), *Binding* (*chap.* 14 *C*), *Textual criticism and ancient and mediæval book-trade* (*chap.* 14 *E*), *Library history* (*chap.* 15); *esp. nos.* 48.1, 49, 135, 190, 366, 470, 1003.1, 1412, 1530.2, 1534.1, 1636.

1455.1. **Allen,Thomas William.** Greek abbreviation in the fifteenth century. Lond.,Milford[1926]. (From Brit.acad.*Proc.*)

1456. **Barton,George Aaron.** Some notes on the Blau monuments. (In Amer. oriental soc.*Journal* 22(1901)pt.1,p.118–26.)

1457. **Berger,Philippe.** Histoire de l'écriture dans l'antiquité. Par.,Impr.nat., 1892.2d ed.

1458. **Bonnet,Hans.** Ägyptisches Schrifttum. Lpz.,Deutscher Verein f.Buchwesen u.Schrifttum,1919.

1459. **Brandi,Karl.** Unsere Schrift. Gött.,Vandenhoeck,1911.

1459.1. **Bridges,Robert,& others.** English handwriting. Ox.,Clarendon press, 1926–27.illus. (*S.P.E.tract* 23 & 28.)

1460. **De Burgh,William George.** Legacy of the ancient world. Lond.,Macmillan,1924.

1461. **Dornseiff,Franz.** Alphabet in Mystik und Magie. Lpz.,Teubner,1925.2d ed.

1462. **Downey,June Etta.** Graphology and the psychology of handwriting. Balt.,Warwick,1919.

1463. **Dussaud,René.** Inscriptions phéniciennes du tombeau d'Ahiram. (In *Syria* 5(1924)p.135–57.) Cf.Petrie in *Ancient Egypt*,Mar.1925,p.24–25.

1464. **Egbert,James Chidester.** Introduction to the study of Latin inscriptions. N.Y.,Amer.bk.co.[1906].Rev.ed.

1465. **Evans,Arthur John.** European diffusion of pictography and its bearings on the origin of script. (In *Anthropology & the classics*,ed.by R.R.Marett. Ox.,1908.)

1466. ——. Scripta Minoa. Ox.,Clarendon press,1909.v.1.

1467. **Gardiner,Alan Henderson.** Egyptian origin of the Semitic alphabet. (In *Jour.of Egypt.archæol.*3(1916)p.1–16.)

1468. ——. Nature and development of the Egyptian hieroglyphic writing. (In *Journ.of Egypt.archæol.*2(1915)p.61–75.)

1468.1. **Gardthausen,Viktor Emil.** Griechische Palaeographie. Lpz.,Veit,1911–13.2v.2d ed.

1469. **Grenier,Albert.** Alphabet de Marsiliana et les origines de l'écriture à Rome. (In École franç.de Rome. *Mélanges* 41(1924)p.3–41.)

1469.1. Haskins,Charles Homer. Renaissance of the twelfth century. Camb., Harvard univ.press,1927.

1470. Jensen,Hans. Geschichte der Schrift. Hannov.,Lafaire,1925.

1471. Kenyon,Frederic George. The palæography of Greek papyri. Oxford, Clarendon press,1899.

1472. Kirchhoff,Adolf. Studien zur Geschichte des griechischen Alphabets. Gütersloh,Bertelsmann,1887.4th ed.

1473. Langdon,Stephen. Early chronology of Sumer and Egypt and the similarities in their culture. (In *Jour.of Egypt.archæol.*7(1920)p.133–153.)

1474. Lee,C.D.,& Abbey,R.A. Classification and identification of handwriting. N.Y.,Appleton,1922.

1475. Leftwich,Ralph Winnington. Shakespeare's handwriting. Worthing, *Gazette* [1919]. Cf.Tannenbaum,S.A. *Problems in Shakespeare's penmanship.* N.Y.,Century,1927.

1476. Lehmann,Paul Joachim Georg. Lateinische Paläographie. (In *Einleitung in die Altertumswiss.*,ed.by A.Gercke & E.Norden.3d ed.v.1,pt.10. Lpz.1925.)

1477. Lidzbarski,Mark. Handbuch der nordsemitischen Epigraphik. Weimar, Felber,1898.2v.

1478. Lindsay,Wallace Martin. Notae Latinae. Camb.,Univ.press,1915.

1479. Lowe,Elias Avery. Handwriting. (In *Legacy of the Middle Ages.* Ox., Clarendon press,1926,p.197–226.)

1480. Madan,Falconer. Books in manuscript. Lond.,Paul,1920.2d ed.

1481. Mason,William Albert. History of the art of writing. N.Y.,Macmillan, 1920.

1481.2. Mentz,Arthur. Antike Stenographie. Mün.,Heimeran,1927.

1482. ——. Geschichte der griechisch-römischen Schrift. Lpz.,Dieterich,1920.

1482.1. Modern Language Association of America. Rotographs of manuscripts and rare printed books. (In its *Pub.*42 no.4(Dec.1927)prelim.pp.)

1483. Möller,Georg. Hieratische Paläographie. Lpz.,Hinrichs,1909–10.3v.

[1484. Newbold,William Romaine. Cipher of Roger Bacon. Phila.,Univ.of Pa.press,1928.]

1485. Osborn,Albert Sherman. Questioned documents. Rochester,Lawyers' coöp.pub.co.,1910.

1486. Palaeographia latina. Lond.,Milford,1922– . (St.Andrews univ. *Pub.* 14 etc.) Ed.by W.M.Lindsay.

1487. Palæographical society,London. Facsimiles of manuscripts and inscriptions. Lond.1873–83.3v. Also 2d ser.1884–94.2v. Also New palæogr.soc. *Facss*.etc.1903–12.2v.& 2d ser.,1913– . Also indices.2v.

1487.1. Pennsylvania University. Babylonian expedition . . . series A,cuneiform texts . . . v.1. Phila.1893–96. By H.V.Hilprecht.

1488. Petrie,William Matthew Flinders. Formation of the alphabet. Lond., Macmillan,1912. (Brit.school of archæol.in Egypt. *Studies ser*.v.3.)

1489. Piette,Édouard. Écritures de l'âge glyptique. (In *Anthropologie* 16 (1905)p.1–11.)

1490. ——. Galets coloriés de Mas d'Azil. (In *Anthropologie* 7(1896)p.385–427.)

1491. Prou,Maurice. Manuel de paléographie latine et française. Par.,Picard, 1924,& atlas.4th ed.

1492. Rogers,Robert William. Cuneiform parallels to the Old Testament. N.Y.,Eaton,1912.

1493. ——. History of Babylonia and Assyria. N.Y.,Abingdon press,c1915.2v. 6th ed.

1494. Sandys,John Edwin. Latin epigraphy. Camb.,Univ.press,1927.2d ed.

1495. Saudek,Robert. Psychology of handwriting. N.Y.,Doran,1926.

1496. Schiaparelli,Luigi. Avviamento allo studio delle abbreviature latine nel medioevo. Fir.,Olschki,1926.

1497. ——. Scrittura latina nell' età romana. Como,Ostinelli,1921.

1497.1. Schramm,Albert. Schreib- und Buchwesen einst und jetzt. Lpz.,Quelle, [1922].illus.

1498. Schubart,Wilhelm. Einführung in die Papyruskunde. Ber.,Weidmann, 1918.

1499. ——. Griechische Palaeographie. Mün.,Beck,1925. (*Handbuch der Altertumswissenschaft.*)

1499.1. Scott,Henry Thomas,& Davey,Samuel. Guide to the collector of historical documents,literary manuscripts and autograph letters,etc. Lond., Davey,1891.

1499.2. Severo,Ricardo. As necropoles dolmenicas de Traz-os-Montes. (In *Portugalia*(1899–1903)p.687–750.)

1500. Smith,Adèle Millicent. Writing and printing materials. Phila.,Author, 1912.

1501. Steffens,Franz. Lateinische Paläographie. Trier,Schaar,1909.2d ed.illus.

1502. Stübe,Rudolf. Ursprung des Alphabetes und seine Entwicklung. Ber., Heintze[1921].illus.

1503. Tabulae in usum scholarum. Bonn,Marcus,1910– . Ed.by J.Lietzmann. Partial contents:—Franchi de Cavalieri,P.,& Lietzmann,J. Specimina codicum Graecorum Vaticanorum.—Schubart,W. Papyri Graecae Berolinenses.—Ehrle, F.,& Liebaert,P. Specimina codicum Latinorum Vaticanorum.—Diehl,E. Inscriptiones Latinae.—Mentz,G. Handschriften der Reformationzeit.—Kern, O. Inscriptiones Graecae.—8. Tisserant,E. Specimina codicum orientalium.—Hulshof,A. Deutsche und lateinische Schrift in den Niederlanden.

1504. Taylor,Henry Osborn. Mediæval mind. Lond.,Macmillan,1914.2v.

1505. Thompson,Edward Maunde. Introduction to Greek and Latin palæography. Ox.,Clarendon press,1912.illus.

1506. Traube,Ludwig. Vorlesungen und Abhandlungen. Mün.,Beck,1909–20. 3v. Ed.by F.Boll & others. Partial contents:—(v.1.) Geschichte der Paläographie.—Grundlagen der Handschriftenkunde(Das Buch.—Die Bibliotheken). —Lehre und Geschichte der Abkürzungen.—(v.2.) Lateinische Schrift im Mittelalter.

1507. Unger,Eckhard. Babylonisches Schrifttum. (In Deutscher Verein für Buchwesen u.Schrifttum. *Zeitschrift* 3(1920). Also reprinted.)illus.

1508. Vitelli,Girolamo,& Paoli,Cesare. Collezione fiorentina di facsimili paleografici greci e latini. Fir.,Le Monnier,1884–97.2v.

1508.2. Weise,Oskar. Schrift- und Buchwesen in alter und neuer Zeit. Lpz., Teubner,1919.4th ed.

1509. Wessely,Carl. Schrifttafeln zur älteren lateinischen Palaeographie. Lpz., Avenarius,1898.

1509.2. Wettley,Johann. Handwerkszeuge der Graphik von der Eiszeit bis zur Gegenwart. Ber.,Heintze[1922]illus. Text reproduced in German script.

1510. Weule,Karl. Vom Kerbstock zum Alphabet. Stutt.,Franck,1921.16th ed.

1511. Williams,Henry Smith. Manuscripts,inscriptions and muniments . . . comprehending the history of writing. Lond.,Merrill,c1902.facsims.

1511.1. Wise,Marjory. On the technique of manuscript writing. N.Y.,Scribner,c1924.

CHAPTER XIII

HISTORY OF PRINTING

Cf. also books on practical printing (*chap.* 2), *lists of rare books, early books, and fine books, under special subjects* (*chaps.* 4–6), *in special countries* (*chap.* 10), *and in general* (*chaps.* 9, 11 *A*), *Bibliographical journals* (*chap.* 11 *D*); *also nos.* 4, 8 (*von Rath*), 14, 31.2 (*Teichl*), 32 (*von Rath*), 34, 40, 176, 461, 863, 925–26, 1099 (36.

Schmeckebier), 1147, 1206.1, 1267 (*Scheffauer*), 1424 (1. *Redgrave.*—4. *Haebler.*—7. *Macfarlane.*—8. *Proctor.*—11. *Steele.*—12. *Madan.*—15. *De Ricci.*—18. *Duff*), 1425 (*McKerrow.—Pollard*), 1434 (*De Vinne*), 1449 (*Lepreux*), 1451 (*Haebler.—Prussia. Komm. f. d. Gesamtkat.*), 1497.1, 1508.2.

1512. Aldis,Harry Gidney. Printed book. Camb.,Univ.press,1921.

1513. Das alte Buch und seine Ausstattung.[Wien,Gerlach,1915]1376 illus.

1514. American institute of graphic arts,N.Y. Fifty books,exhibited . . . 1926. N.Y.,Day,1927.illus. Cf.also its exhibit list,*Printing for commerce.*

1514.3. Ars typographica. N.Y.1924– .

1514.4. Aurner,Nellie Slayton. Caxton; mirrour of fifteenth-century letters. Lond.,Allan,1926.

1514.5. Bartlett,Edward Everett. Typographic treasures in Europe,and a study of contemporaneous book production. N.Y.,Putnam,1925.

1514.8. Bernard,Auguste Joseph. Geoffroy Tory,peintre et graveur. Par.,Tross, 1865.2d ed. Eng.trans.by G.B.Ives. Camb.,Riverside press,1909.illus.

1514.9. Bertieri,Raffaello,& Fumagalli,Giuseppe. L'arte di Giambattista Bodoni. Mil.,Bertieri[1913]illus.

1515. Bibliographical society of America. Census of fifteenth century books owned in America. (In N.Y.Pub.lib.*Bull.*22–23(1918–19). Also reprinted.)

1515.1. Bibliotheca typographica. Wien,1927– . Illus.series.

1515.2. Bigmore,Edward Clements,& Wyman,Charles William Henry. Bibliography of printing. Lond.,Quaritch,1880–86.3v.

1516. Blades,William. Account of the German morality play entitled Depositio cornuti typographici. Lond.,Trübner,1885.

1516.1. ——. Pentateuch of printing. Lond.,Stock,1891.

1517. Bohatta,Hans. Einführung in die Buchkunde. Wien,Gilhofer,1927.

1518. Bouchot,Henri. Printed book; its printers,illustrators and binders. N.Y., Scribner,1890.illus. Trans.by E.C.Bigmore,2d ed.,by H.Grevel.

1519. British museum. Dept.of printed books. Catalogue of books printed in the XVth century. Lond.1908– .illus. Cf.earlier *Index* by R.G.C.Proctor,1898.

1520. Brown,Horatio. Venetian printing press. Lond.,Nimmo,1891.

1522. Carter,Thomas Francis. Invention of printing in China and its spread westward. N.Y.,Columbia univ.press,1925.

1523. Christian,Arthur. Débuts de l'imprimerie en France. Par.,Impr.nat., 1905.illus.

1524. Claudin,Anatole. Histoire de l'imprimerie en France au XVe et au XVIe siècle. Par.,Impr.nat.,1900–14.4v.illus. Suppl.by S.De Ricci,1927.

1525. Copinger,Harold Bernard. Elzevier press,a handlist. Lond.,Grafton, 1927. Index to earlier bibls.

1526. Crous,Ernst. Faksimilia von Wiegendrucken. (In *Zeitschr.für Buchkunde* 1(1924)p.148–53.)

1526.2. DeVinne,Theodore Lowe. Practice of typography. N.Y.,Century, 1902–04.4v.illus. Contents:—Treatise on the processes of type-making.2d ed. —Treatise on title-pages.—Modern methods of book-composition.—Correct composition.

1526.3. ——. Invention of printing. Lond.,Trübner,1877.2d ed.

1526.6. DeVinne press. Types of the DeVinne press. N.Y.1907.

1527. Duff,Edward Gordon. Early printed books. Lond.,Paul,1893.illus.

1528. Fleuron; a journal of typography. Lond.1923– .

1529. Gamble,William. Music engraving and printing. Lond.,Pitman,1923.illus.

1530. Gesamtkatalog der Wiegendrucke. Lpz.,Hiersemann,1925– . Ed.by a Prussian "Kommission."

1530.1. Gottschalk,Paul. Buchkunst Gutenbergs und Schöffers. Ber.1918.

1530.2. Goudy,Frederic W. The alphabet. N.Y.,Kennerley,1918.illus.

1530.3. Guppy,Henry. Stepping stones to the art of typography. (In John Rylands lib.*Bull.*12(1928)p.83–121.)illus.

1530.4. Gutenberg Gesellschaft. Veröffentlichungen. Mainz,1902– .

1530.5. Gutenberg Jahrbuch. Mainz,Gutenberg Gesellschaft,1926– .

1530.6. Gutenbergfestschrift. Mainz,Gutenberg Gesellschaft[1925].

1531. Haebler,Konrad. Geschichte des spanischen Frühdruckes. Lpz.,Hiersemann,1923.illus.

1532. ——. Handbuch der Inkunabelkunde. Lpz.,Hiersemann,1925.

1532.1. ——. Tipografia ibérica del siglo XV. La Haye,Nijhoff,1902.illus.

1533. Hain,Ludwig Friedrich Theodor. Repertorium bibliographicum. Stutt.,Cotta,1826–38.2v.& suppls.: by W.A.Copinger,Lond.1895–1902.2v.; by K.Burger,Lpz.,1908; by D.Reichling,Mün.,1905–14.8v.; & by Komm.f.d.Gesamtkatalog,Lpz.,1910.

1533.1. Hamilton,Frederick William. Brief history of printing in America. [Chic.]United typothetæ,1918.

1534. Hartwig,Otto,ed. Festschrift zur fünfhundertjährigen Geburtstage von Johann Gutenberg. Lpz.,Harrassowitz,1900(*Z.B.Beiheft* 8,pt.23). Includes Schorbach,K. *Die urkundlichen Nachrichten über Johann Gutenberg.* Facsims.

1534.1. Hessel,Alfred. Von der Schrift zum Druck. (In *Zeitschr.des Deutschen Verein für Buchwesen und Schrifttum* 6(1923)p.89–105.)illus.

1534.2. Hessels,Jan Hendrik. Haarlem the birthplace of printing,not Mentz. Lond.,Stock,1887. Cf.his article in *Encycl.Brit.*,ed.10–11.

1535. Hildeburn,Charles Swift Riché. Century of printing; issues of the Pennsylvania press,1685–1784. Phila.,Matlack,1885–86.2v.

1535.1. ——. List of the issues of the press in New York,1693–1752. (In *Penn. mag.of hist.& biog.*12,475–82; 13,90–98; 207–15. Also reprinted,1889.)

1536. Hoe,Robert. Short history of the printing press and of the improvements in printing machinery. N.Y.,Hoe,1902.

1537. Holme,Charles,ed. Art of the book. (*International studio.* Special no., spring,1914.)illus.

1538. Jackson, Holbrook. Robert Bridges, George Moore, Bernard Shaw, and printing. (In *Fleuron* 4(1925)p.47–53.)

1539. Kautzsch,Rudolf,ed. Neue Buchkunst. Weimar,Ges.der Bibliophilen,1902.

1540. Koch,Theodore Wesley. Florentine book fair: The book section of the Exposition of decorative arts: The German book exhibit at Columbia university. Evanston.Printed for subscribers,1926.illus.

1540.1. Le Verdier,Pierre. L'atelier de Guillaume Le Talleur,Rouen,1816.

1540.2. Linotype bulletin. N.Y.,1911– .

1540.3. Littlefield,George Emery. Early Massachusetts press,1638–1711. Bost.,Club of odd volumes,1907.2v.

1541. Loubier,Hans. Neue deutsche Buchkunst. Stutt.,Krais,1921.illus.

1542. McKerrow,Ronald Brunlees. Introduction to bibliography for literary students. Ox.,Clarendon press,1927.

1542.1. McMurtrie,Douglas Crawford. Golden book. Chic.,Covici,1927.

1542.2. ——. Type design; an essay on American type design,with specimens. Pelham,N.Y.,Bridgman,1927.

1542.3. Maittaire,Michael. Annales typographici ab artis inventae origine ad annum MDCLXIV. Amst.,Humbert,1733.2 pt. Suppl.by M.Denis,Vienna,1789.

1542.6. Mejer,Wolfgang. Buchdrucker Hans Lufft zu Wittenberg. (In Deutscher Verein für Buchwesen und Schrifttum *Zeitschrift* 4(1921)p.93–140. Also reprinted.)

1542.7. Monumenta Germaniae et Italiae typographica . . . in getreuen Nachbildungen. Ber.,Reichsdruckerei,1892–1913.2v. By K.Burger & E.Voullième.

1543. Morison,Stanley. Four centuries of fine printing. Lond.,Benn[1924]illus. Partly reproduced in his *Art of the printer*,1925.

1544. ——. Modern fine printing. Lond.,Benn,1925.illus.

1545. ——. Type designs of the past and present. Lond.,Fleuron,1926.illus.

1546. ——,& Jackson,Holbrook. Brief survey of printing. N.Y.,Knopf,1923. Partly re-ed.in Morison's *Review of recent typography*,1927.

1547. Moxon,Joseph. Mechanick exercises; or,The doctrine of handy-works applied to printing. N.Y.,Typothetae,1896.2v. 1st ed.,1683.

1548. New York. Metropolitan museum of art. Guide to an exhibition of the arts of the book,by W.M.Ivins,Jr. N.Y.,1924.illus.

1548.1. Newberry library,Chicago. Check list of books printed during the fifteenth century. Chic.1924. By Pierce Butler.

1548.3. Nijhoff,Wouter. Art typographique dans les Pays-Bas . . . 1500–40. La Haye,Nijhoff,1926– .illus.

1549. Orcutt,William Dana. Kingdom of books. Bost.,Little,1927.illus.

1550. Oswald,John Clyde. Benjamin Franklin,printer. [Garden City],Doubleday,1917.

1550.2. Oxford university press. Some account of the Oxford university press, 1468–1926. Ox.,Clarendon press,1926.illus.

1551. Pansier,Pierre. Histoire du livre et de l'imprimerie à Avignon du XIVme au XVIme siècle. Avignon,Aubanel,1922.3v.illus.

1552. Panzer,Georg Wolfgang Franz. Annales typographici . . . ad annum MC.Norimbergae,Zeh,1793–1803.11v. v.6–11 cover 1501–36.

1552.2. Pastorello,Ester. Tipografi,editori,librai a Venezia nel secolo XVI. Fir.,Olschki,1924.

1553. Peddie,Robert Alexander. Books on the practical side of printing. (In Bibl.soc.*Trans.*9(1906–08)p.1–4.)

1554. ——. Conspectus incunabulorum; an index catalogue. Lond.,Libraco 1910– .

1555. ——. Fifteenth-century books; a guide to their identification. Lond., Grafton,1913.

1556. ——. Outline of the history of printing . . . [&]history of printing in colours. Lond.,Grafton,1917.

1556.1. ——,& others. Printing,a short history of the art. Lond.,Grafton,1927.

1557. Periods of typography. Lond.,Benn,1926– .illus. Partial contents:—Johnson,A.F. First century of printing at Basle.—*Id.* Italian sixteenth century.—Thomas,H. Spanish sixteenth-century printing.—Johnson,A.F. French sixteenth-century.

1558. Plantin,Christophe. Index characterum of 1567. N.Y.1924. Facsim. reprint. Ed.by D.McMurtrie.

1559. Plomer,Henry Robert. Short history of English printing,1476–1900. Lond.,Paul,1915.2d ed.

1560. ——. William Caxton. Lond.,Parsons[1925].

1561. ——. Wynkyn de Worde and his contemporaries. Lond.,Grafton,1925. illus.

1561.1. Pollard,Alfred William. Essay on colophons,with specimens and translations. Chic.,Caxton club,1905.

1562. ——. Fine books. Lond.,Methuen[1912].illus.

1562.1. Ransom,Will. Private presses and the books they have given us. (In *Pub.weekly* 112(1927)*passim.*)

1562.6. Roden,Robert F. Cambridge press,1638–1692. N.Y.,Dodd,1905.

1562.7. Rodenberg,Julius. Deutsche Pressen; eine Bibliographie. Zür.,Amalthea-Verlag[1925].illus.

1562.8. Rooses,Max. Musée Plantin Moretus. Anvers,Zazzarini,1914.

1563. Rutherfurd,Livingston. John Peter Zenger; his press,his trial. N.Y., Dodd,1904.

1565. Scholderer,Victor. Greek printing types,1465–1927: facsimiles from an exhibition. Lond.,Brit.museum,1927.

1566. Schramm,Albert. Vom russischen Buch. (In *Zeitschr.für Buchkunde* 1 (1924)p.160–172.)
1567. Seidensticker,Oswald. First century of German printing in America, 1728–1830. Phila.,Schaefer,1893.illus.
1568. Sparling,Henry Halliday. Kelmscott press and William Morris master-craftsman. Lond.,Macmillan,1924.illus.
1569. Steele,Robert R. What fifteenth-century books are about. (In *Library*, n.s.4–8(1903–07)*passim*.)
1569.1. Straus,Ralph,& Dent,Robert Kirkup. John Baskerville. Camb.1907.
1569.2. Thibaudeau,Francis. Lettre d'imprimerie. Par.,Bureau de l'édition [1921].2v.& sequel,*Manuel français de typographie moderne*[1924].
1570. Thiboust,Claude Louis. Excellence de l'imprimerie. Par.,1754. Latin, with French trans.by C.C.Thiboust.
1570.1. Thomas,Isaiah. History of printing in America. Alb.,Munsell,1874.2v. 2d ed.
1570.3. Times(London). Literary supplement. Printing number. Oct.13,1927.
1570.4. Tomkinson,G.S. Select bibliography and history of the principal modern presses . . . in Great Britain and Ireland. Lond.,First ed.club,1928.
1571. Updike,Daniel Berkeley. Printing types. Camb.,Harvard univ.press, 1922.2v.illus.3d printing,1927.
1571.1. Victoria and Albert museum,South Kensington. National art library. Notes on printing and bookbinding; a guide to the exhibition of tools and materials. By S.T.Prideaux. Lond.,H.M.Stationery off.1921.illus.
1572. Warde,Frederic. Bruce Rogers,designer of books. Camb.,Harvard univ. press,1925(repr.from *Fleuron* no.4).
1573. Winship,George Parker. Gutenberg to Plantin. Camb.,Harvard univ. press,1926.illus.
1574. ——. Vollbehr incunabula. [N.Y.,Pynson printers,1926.]
1575. Wroth,Lawrence Counselman. History of printing in colonial Maryland. [Balt.]Typothetae,1922.
1576. Zedler,Gottfried. Neuere Gutenbergforschung und die Lösung der Costerfrage. Frank.,Baer,1923.
1577. ——. Von Coster zu Gutenberg. Lpz.,Hiersemann,1921.

CHAPTER XIV

DECORATION. BOOK-TRADE

Cf. also Practical bibliography (*chap.* 2); *Art* (*chap.* 5 *B*); *lists of early, rare, and fine books under Subject bibliography* (*chaps.* 4–6), *Special bibliography* (*chap.* 9 *A*), *and National bibliography* (*chap.* 10); *History of writing and printing* (*chaps.* 12–13); *Book-trade publications* (*chap.* 10); *also nos.* 2, 4, 14, 858, 1041.1, 1071.8, 1199, 1267 (*Schulze*), 1343, 1425 (*Duff.—McKerrow.—etc.*), 1434, 1435 (13. *Carta*), 1622, 1628.5, 1639.2.

A. ILLUMINATION OF MSS.

1577.1. Bradley,John William. Illuminated manuscripts. Lond.,Methuen[1905] Repr.,1920.illus.
1577.2. British museum. Reproductions from illuminated manuscripts. Lond. 1910.3v.2d ed.3d ed.(repr.),1923– .
1577.3. ——. Schools of illumination; reproductions from illuminated manuscripts. Lond.1914– .
1578. Choulant,Johann Ludwig. History and bibliography of anatomic illustration. Chic.,Univ.press[1920].illus. Trans.& ed.by M.Frank.
1579. Engelmann,Richard. Antike Bilder aus römischen Handschriften in phototypischer Reproduction. Leid.,Sijthoff,1909.

1580. Farnsworth,Sidney. Illumination and its development in the present day. N.Y.,Doran[1922?]illus.

1581. Herbert,John Alexander. Illuminated manuscripts. N.Y.,Putnam,1911. illus.

1581.1. Jacobi,Franz. Deutsche Buchmalerei in ihren stilistischen Entwicklungsphasen. Mün.,Bruckmann,1923.illus.

1581.2. Livre français des origines à la fin du second empire,par Henry Martin [& others]. Par.,Van Oest,1924.

1582. Morey,Charles Rufus. Sources of mediæval style. (In *Art bull.*7(1924) no.2. Also reprinted.)

1582.1. Société française de reproductions de manuscrits à peintures. Bulletin.1911– .illus. Includes bibl.

1583. Thompson,Edward Maunde. Grotesque and the humorous in illuminations of the Middle Ages. (In *Bibliographica* 2(1896)p.309–32.)

B. ILLUSTRATION, PRINTERS' ORNAMENTS, ETC.

1583.01. Burch,Robert M. Colour printing. Lond.,Pitman,1910.

1583.1. Campbell,Evan. Commercialism in book-collecting: Extra illustration of books. (In *Bibliographer* 2(1903)p.225–33.)

1584. Conway,William Martin. Woodcutters of the Netherlands. Camb.,Univ. press,1884.

1585. Crane,Walter. Of the decorative illustration of books. Lond.,Bell,1905. illus.3d ed. Later reprints.

1585.01. Cult of the colophon. (In *Pub.weekly* 112(1927),p.384–89.)

1585.1. Delen,A.J.J. Histoire de la gravure dans les anciens Pays–Bas. Brux., van Oest,1924– .illus.

1585.2. Holman,Louis Arthur. Graphic processes; a series of actual prints . . . with notes. Bost.,Goodspeed,1926.

1586. Jennings,Oscar. Early woodcut initials. Lond.,Methuen[1908].illus.

1587. Johnson,Henry Lewis. Historic design in printing. Bost.,Graphic arts, 1923.illus.

1587.1. Juchhoff,Rudolf. Drucker- und Verlegerzeichen des XV. Jahrhunderts in den Niederlanden,England,Spanien[etc.]. Mün.,Münchener Drucke,1927.

1588. Landauer,Bella C. Printers' mottoes. N.Y.,Priv.print.,1926.

1588.1. Lyell,James Patrick Ronaldson. Early book illustration in Spain. Lond.,Grafton,1926.

1588.2. Meiner,Annemarie. Das deutsche Signet. (In *Zeitschr.d.Deutschen Verein f.Buchwesen*[etc.]5(1922)p.1–72. Also reprinted.)illus.

1588.3. New York. Public library. Art and prints division. Illustrated books of the past four centuries. (In its *Bull.*23(1919)*passim.* Also reprinted.) Exhibition catalogue,by F.Weitenkampf.

1589. Ostrop,Max. Das künstlerische Verlagszeichen der Gegenwart. (In *Zeitschr.f.Bücherfreunde.* N.F.11(1919–20)p.147–59.)illus.

1590. Pennell,Joseph. Graphic arts. Chic.,Univ.press,c1921.illus.

1590.1. Pichon,Léon. New book-illustration in France. (*Studio*,1924,special no.) Trans.by H.B.Grimsditch.

1590.2. Plomer,Henry Robert. English printers' ornaments. Lond.,Grafton, 1924.

1591. Pollard,Alfred William. Early illustrated books. Lond.,Paul,1893.illus.

1591.1. Price,Matlack. American book illustration. (In *Sat.rev.of lit.*Oct.18, 1924,p.202.)

1591.2. Ratta,Cesare,& Petri,Stanislao. Adornatori del libro in Italia. Bologna,Scuola di arti grafiche,1923–26.5v.illus.

1592. Roberts,William. Printers' marks. Lond.,Bell,1893.illus.

1593. Salaman,Malcolm Charles. British book illustration yesterday and today. Lond.,Studio,1923.illus.

1593.2. Schramm,Albert. Bilderschmuck der Frühdrucke. Lpz.,Deutsches Museum für Buch und Schrift,1920–23.7v.

1593.3. Schreiber,Wilhelm Ludwig. Manuel de l'amateur de la gravure . . . XVe siècle. Ber.,Cohn,1891–1911.8v.illus. Ger.ed.,Lpz.,Hiersemann,1926– .

1593.4. Wheatley,Henry Benjamin. Portraits in books. (In Bibl.soc.*Trans.*4 (1896–98)p.129–36.)

C. HISTORY OF BINDING. PAPER MARKS, ETC.

1593.5. Berlin. Preussische Staatsbibliothek. Bucheinbände. Ber.1925. By M.Husung.100 pl.

1594. Brassington,William Salt. History of the art of bookbinding. N.Y., Macmillan[1894].illus.

1595. Briquet,Charles Moïse. Filigranes; dictionnaire historique des marques du papier. Lpz.,Hiersemann,1923.4v.2d ed. Cf.also *Bibl.mod.*17(1914)p.302–25.

1595.1. British museum. Early stamped bookbindings. Lond.,1922.illus. By H.J. Weale & L.Taylor.

1595.2. Darmstadt. Landesbibliothek. Bucheinbände aus dem XIV.–XIX. Jahrhundert.Lpz.,Hiersemann,1921.101 pl. By A.Schmidt.

1596. Davenport,Cyril James H. The book; its history and development. Lond.,Constable,1907.illus.

1597. ——. Decoration of book-edges. (In *Bibliographica* 2(1896)p.385–407.)illus.

1597.1. Dutton,Meiric K. Historical sketch of bookbinding. Norwood,Holliston,1926.

1598. Eisen,Gustavus A. Art of book covers dating from the early years of the Christian era. (In *Internat.studio* Nov.–Dec.1924.)

1599. Fletcher,William Younger. Bookbinding in England and France. Lond.,Seeley,1897.

1599.1. Gibson,Strickland. Localization of books by their bindings. (In Bibl. soc.*Trans.*8(1904–1906)p.25–38.)

1599.11. Goldschmidt,E.Ph. Gothic and renaissance bookbindings. Lond.,Benn, 1928.2v. v.2,plates.

1599.2. Gruel,Léon. Manuel historique . . . de l'amateur des reliures. Par., 1887–1905.2v.illus.

1600. Hobson,Geoffrey Dudley. Maioli,Canevari,and others. Bost.,Little,1926.

1600.1. Ingpen,Roger. Decorated papers. (In *Fleuron* 2(1924)p.99–106.illus.)

1600.2. Jahrbuch der Einbandkunst. Lpz.1927– .

1600.3. Loubier,Hans. Bucheinband. Lpz.,Klinkhardt,1926.2d ed.illus.

1600.4. Mejer,Wolfgang. Bibliographie der Buchbindereiliteratur. Lpz.,Hiersemann,1925.

1600.5. Modern book-bindings and their designers. (*Studio*,special winter no. 1899–1900.)illus.

1600.6. Olivier,Eugène. Manuel de l'amateur de reliures armoriées françaises. Par.,Bosse,1924– .illus.

1601. Prideaux,Sarah Treverbian. Bookbinders and their craft. N.Y.,Scribner,1903.illus.

1602. ——. Historical sketch of bookbinding. Lond.,Lawrence,1893.illus.

1603. ——. Modern bookbindings. Lond.,Constable,1906.illus.

1603.1. Quaritch,firm,London. Catalogue of English and foreign bookbindings offered for sale. Lond.1921.illus.

1603.11. Schechter,Frank I. Early printers' and publishers' devices. (In Bibl. soc.of Amer.*Papers* 19(1925)p.1–28.)

1603.2. Toldo,Vittorio de. Italian art of bookbinding. Lond.,Batsford,1925. illus. Ital.ed.,Milan,1923.

D. BOOK-PLATES

1604. Allen,Charles Dexter. American book-plates. N.Y.,Macmillan,1905.

1604.1. Bookplate. Flansham,1920– . Pub.of Eng.bookplate soc. Cf.also its earlier *Journal*,1891–1908.

1604.2. Bookplate annual for 1921– . Kansas City,1921– .

1604.3. British museum. Dept.of prints & drawings. Franks bequest; catalogue of British and American book plates. Lond.,1903–04.3v.

1604.4. Castle,Egerton. English book-plates. Lond.,Bell,1893.

1605. De Tabley,John Byrne Leicester Warren,3d baron. Guide to the study of book-plates. Manchester,Sherratt,1900.illus. Rev.ed.by E.Leighton.

1605.1. Exlibris,Buchkunst und angewandte Graphik. Ber.1892– . Pub.of Deutscher Ver.für Exlibriskunst[etc.]. Earlier title: *Exlibris,Zeitschrift.*

1605.2. Fuller,George Washington,ed. Bibliography of bookplate literature. Spokane,Pub.library,1926. Bibl.by V.B.Grimm.

1605.3. Hamilton,Walter. French book-plates. Lond.,Bell,1896.

1605.4. Koch,Theodore Wesley. Concerning book plates. (In Bibl.soc.of Amer. *Papers* 9(1915)p.3–20.)

1605.5. Linnig,Benjamin. Bibliothèques et d'ex-libris d'amateurs belges. Par., Daragon,1906. *Nouv.ser.*,Brux.,van Oest,1910.

1605.6. Vinycomb,John. On the processes for the production of ex-libris. Lond., Black,1894.

1606. Zur Westen,Walter von. Exlibris. Bielefeld,Velhagen,1925.illus.3d ed.

E. HISTORY OF BOOK-TRADE. COPYRIGHT. CENSORSHIP

1606.1. American book trade manual. N.Y.,Bowker,1915– .

1606.2. Bacon,Corinne. What makes a novel immoral. White Plains,Wilson, 1914.

1607. Birt,Theodor. Das antike Buchwesen. Ber.,Hertz,1882.

1607.1. Börsenverein der deutschen Buchhändler. Historische kommission. Geschichte des deutschen Buchhandels. Lpz.1886–1913.4v. By J.Goldfriedrich & F.Kapp.

1607.3. Bowker,Richard Rogers. Copyright, its history and its law. Bost., Houghton,1912.

1607.4. British booksellers. Liverpool,1924– . Continues section of *Literary Yearbook.*

1607.5. Das Buchgewerbe und die Kultur. Lpz.,Teubner,1907. Lectures by R.Focke,R.Kautzsch & others.

1607.6. Collins,A.S. Authorship in the days of Johnson. Lond.,Holden,1927.

1607.9. Delalain,Paul. Étude sur le libraire parisien du XIIIe au XVe siècle. Par.,Delalain,1891.

1608. De Wolf,Richard Crosby. Outline of copyright law. Bost.,Luce,c1925.

1608.3. Estienne,Henri. La foire de Francfort. Par.,Liseux,1875. Trans.by I.Liseux.

1608.4. Greg,Walter Wilson. Calculus of variants; an essay on textual criticism. Ox.,Clarendon press,1927.

1609. Hall,Frederick William. Companion to classical texts. Ox.,Clarendon press,1913.

1610. Holzknecht,Karl Julius. Literary patronage in the Middle Ages. Phila. 1923.

1611. Lehmann,Paul Joachim Georg. Konstanz und Basel als Büchermärkte während der grossen Kirchenversammlungen. (In *Zeitschr.d.Deutschen Ver.f. Buchwesen und Schrifttum* 4(1921)p.6–11,17–27.)

1611.1. The Librarian; international directory of booksellers, publishers[etc.] Gravesend,1927– . Also called *Clegg's international directory.*

1612. Mumby,Frank Arthur. Romance of bookselling. Bost.,Little,1911.

1612.1. Paschke,Max,& Rath,Philipp. Lehrbuch des deutschen Buchhandels. Lpz.,Börsenverein der deutschen Buchhändler,1912–22.2v.3d–6th ed.

1613. Putnam,George Haven. Authors and their public in ancient times. N.Y., Putnam,1896.3d ed.

1614. ——. Books and their makers during the Middle Ages. N.Y.,Putnam, 1896–97.2v.

1614.1. ——. Question of copyright. N.Y.,Putnam,1896.2d ed.

1614.2. Root,Robert Kilburn. Publication before printing. (In Mod.lang. assoc.of Amer.*Pub.*28(1913)p.417–31.)

1614.3. Schramm, Albert. Deutschlands Verlagsbuchhandel. Lpz.,Tondeur, 1926. Cf.also *Zeitschr.f.Buchkunde* 2(1925)p.75–79.

1615. Schubart,Wilhelm. Buch bei den Griechen und Römer. Ber.,de Gruyter,1921.2d ed.

1615.1. Shaylor,Joseph. Fascination of books, with other papers on books and bookselling. Lond.,Simpkin,1912.

1616. Stemplinger,Eduard. Buchhandel im Altertum. Mün.,Heimeran,1927.

1616.1. U.S.Copyright office. Copyright in Congress,1789–1904. Wash.1905. By T.Solberg.

1616.2. Wattenbach,Wilhelm. Schriftwesen im Mittelalter. Lpz.,Hirzel,1896.

1617. What editors and publishers want. Liverpool,Literary year books press,1925– . Continues section of *Lit.yr.book.* Ed.by M.Meredith.

1618. With the makers of books in America. (In *Literary digest. Internat. book rev.*1–2(1923–24)*passim.*)

CHAPTER XV

LIBRARY HISTORY AND RESOURCES

Cf. also library and union catalogues listed in other chapters, General works (chap. 1), Library science (chap. 7), Bibliographical journals (chap. 11 D); also nos. 1 (1. *Bolton*), 3 (*Meissner*), 5, 31.2 (*Grohmann*), 790 (20. *Swanton*), 1199, 1353.1, 1453 (8. *Green*), 1506, 1508.2, 1614.

1619. American library association. Addresses and papers of foreign delegates. (In its *Bull.*20(1926)p.187–272.) Partial contents:—Chiu,A.K.,& Kwei, J.B. Libraries in China.—Drachmann,A.G. Libraries in Denmark.—Henriot, G. Note on French libraries.—Krüss,H.A. Prussian State library.—Sharp,R.F. British museum library in its international relations.—Meulen,Jacob ter. Essential facts about the library movement in Holland.—Gregori,L.de. Italian libraries in the last half century.—Ohsa,Miyogo. On the libraries in Japan.—Andersen,T.M. Library conditions in Norway.—Udin,S.A. Libraries in Palestine.—Haffkin Hamburger,L. Libraries in the Soviet Union.—Libraries and library work in Siam; origin of the National library.—Sundstrom,E. General survey of Sweden's library system.

1619.1. American library directory. N.Y.1923– . Continues *Amer.lib.annual.*

1619.2. Annuaire des bibliothèques et des archives. Par.1886– .

1619.3. Babcock,Charles E. Latin American libraries. (In Pan American union. *Bull.*Feb.1928,p.156–68.)

1620. Baker,Ernest Albert,& others. Uses of libraries. Lond.,Univ.of Lond. press,1927.

1620.1. Balcke,Curt. German library world and its system. (In *Lib.assoc. record* n.s.5(1927)p.101–21.)

[1620.2. Barwick,George Frederick. Aslib directory; a guide to sources of specialised information. Lond.,Lib.assoc. In preparation.]

1620.3. Begni,Ernesto. Vatican; its history, its treasures. N.Y.,Letters & art pub.co.,c1914.p.431–72,Baumgarten,P.M.Vatican library.

1620.4. Bogeng,Gustav Adolf Erich. Die grossen Bibliophilen. Lpz.,Seemann, 1922.3v.

1621. Boyd,Clarence Eugene. Public libraries and literary culture in ancient Rome. Chic.,Univ.press[1915].

1621.1. Cagnat,René Louis Victor. Bibliothèques municipales dans l'Empire romain. Par.,Impr.nat.,1906. Repr.from Acad.des inscriptions et belles lettres. *Mémoires* 38 pt.1.

1621.2. Carlton,William Newnham Chattin. College libraries in the mid-nineteenth century. (In *L.J.*32(1907)p.480–86.)

1621.3. Carnegie United Kingdom trust. Public library system of Great Britain and Ireland,1921–1923. Edin.,Constable,1924. By J.M.Mitchell.

1622. Clark,John Willis. Care of books. Camb.,Univ.press,1909.2d ed. Repr.

1622.1. Colonial libraries. (In *Lib.world* 26(1924)p.267–79.)

1623. Edwards,Edward. Memoirs of libraries,including a handbook of library economy. Lond.,Trübner,1859.2v.2d rev.ed.(partial)1901.

1623.1. Ehrle,Franz. Historia bibliothecae Romanorum Pontificum. Romae, Vatican,1890.v.1.

1623.2. Elenco delle biblioteche d'Italia. Mil.1926– .

1623.3. Elton,Charles Isaac & Mary Augusta. Great book-collectors. Lond., Paul,1893.

1623.4. Fauteux,Aegidius. Bibliothèques canadiennes. Montreal. (In *Rev.canadienne*.n.s.17(1916)p.97–114,193–217.)

1623.5. Firth,Charles Harding. Dispersion and destruction of archives . . . during the War . . . precedents. (In *Lib.assoc.record* 20(1918)p.29–33.)

1623.6. Fiske,Willard. Book collections in Iceland. [Cop.,Truelsen,1903.]

1623.8. Fletcher,William Isaac. Public libraries in America. Bost.,Little,1899.

1624. Gardthausen,Viktor Emil. Alexandrinische Bibliothek. (In *Zeitschr.d. Deutschen Ver.f.Buchwesen u.Schrifttum.*5(1922)p.73–104. Also repr.)

1625. Gerould,James Thayer. Division of labor among university libraries. (Repr.from Nat.assoc.of state universities. *Proc.*1920.)

1626. Gottlieb,Theodor. Ueber mittelalterliche Bibliotheken. Lpz.,Harrassowitz,1890.

1626.1. Great Britain. Board of education. Public libraries committee. Report on public libraries. Lond.1927. (*Papers by command* Cmd 2868.)

1627. Greenwood,Thomas. Public libraries; a history . . . and a manual. Lond., Cassell,1894.

1628. Hessel,Alfred. Geschichte der Bibliotheken. Gött.,Hochschulverlag,1925.

1628.2. Hoecker,Rudolf. Das spanische Bibliothekswesen. (In *Z.B.*44(1927)p. 20–38.)

1628.3. Jahrbuch der deutschen Bibliotheken. Lpz.,Harrassowitz,1902– .

1628.4. James,Montague Rhodes. Ancient libraries of Canterbury and Dover. Camb.,Univ.press,1903.illus.

1628.5. ——. Wanderings and homes of manuscripts. Lond.,Soc.for promoting Christian knowledge,1919. (*Helps for students of hist.*17.) Cf.current *Migrations of MSS.*in Inst.of hist.research.*Bull.*

1628.7. Jewett,Charles Coffin. Notices of public libraries in the U.S. Wash. 1851(App.to 4th Annual report of Smithsonian inst.)

1629. Johnston,William Dawson,& Mudge,Isadore Gilbert. Special collections in libraries in the United States. (U.S.Bur.of educ.*Bull.*1912,no.23.)

1630. Kenyon,Frederic George. Library of a Greek of Oxyrhynchus. (In *Journ.of Egypt.archæol.*8(1922)p.129–38.)

1631. Koch,Theodore Wesley. British museum library. (In *L.J.*38(1913)p. 499–504,547–56.) Cf.also his *Bibliothèque nationale* (*L.J.*39(1914)p.339–50,419–

30). Also his *Bodleian library*(*ibid.*p.739–46,803–10). Also his *Imperial public library,St.Petersburg*(*L.J.*40(1915)p.5–23,93–108).

1631.3. LEHMANN,PAUL. Quellen zur Feststellung und Geschichte mittelalterlicher Bibliotheken,Handschriften und Schriftsteller. (In *Hist.Jahrb.*40(1920)p. 45–105.)

1631.4. LIBRARIANS' GUIDE. Liverpool[1923]– .

1632. LIPSIUS,JUSTUS. Brief outline of the history of libraries. Chic.,McClurg, 1907. Trans.by J.C.Dana from 2d ed.(Antwerp,1607).

1632.1. LÖFFLER,KLEMENS. Deutsche Klosterbibliotheken. Bonn,Schroeder,1922.

1632.11. ——. Von belgischen Bibliotheken. (In *Z.B.*(1927)p.237–45.)

1632.2. LYDENBERG,HARRY MILLER. History of the New York public library. (In N.Y.P.L.*Bull.*20–24(1916–20). Also repr.)

1632.3. MITTELALTERLICHE BIBLIOTHEKSKATALOGE. Mün.,Beck,1915– . Ed.by T.Gottlieb,P.Lehmann,& others. Auspices of Academies of Ber.,Gött.,etc.

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